

# Solid Waste Management Unit 4 – Sludge Lagoon Closure Construction Certification Report

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Prepared for

**ArvinMeritor**<sup>™</sup>

Troy, Michigan

March 3, 2011

**Brown AND  
Caldwell**

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Columbus, Ohio 43016

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# Certification Statement

"I, David O'Connor, certify that this Sludge Lagoon Closure Construction Certification Report for the former Sludge Lagoon, Solid Waste Management Unit (SWMU) 4 at the Grenada Stamping and Assembly Plant in Grenada, Mississippi and all attachments were prepared in accordance with the provisions and requirements of the approved Closure and Post-Closure Care Plan dated January 29, 2009. Based on my inquiry of the person or persons who were directly responsible for gathering the information, or the immediate supervisor of such person (s), the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

David O'Connor March 1, 2011  
Signature Date

David O'Connor Manager - Corporate Environmental  
Name Title

On this, the 15<sup>th</sup> day of March 2011, before me, a notary public, the above signed person, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Traci A. Morrill  
Notary Public

TRACI A. MORRILL  
Notary Public, State of Michigan  
County of Oakland  
My Commission Expires 03-22-2015  
Acting in the county of Oakland

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# Engineer's Certification

"I, Richard A. Isaac, being a Registered Professional Engineer in the State of Mississippi, PE No. 18640, certify under penalty of law that this Sludge Lagoon Closure Construction Certification Report for the former Sludge Lagoon, Solid Waste Management Unit (SWMU) 4 at the Grenada Stamping and Assembly Plant in Grenada, Mississippi and all attachments were prepared by me or under my direction or supervision in accordance with the provisions and requirements of the approved Closure and Post-Closure Care Plan dated January 29, 2009 and in accordance with good engineering practices. I have personally visited and examined the facility and am familiar with the information submitted in this document and based on my inquiry of the person or persons directly responsible for preparing this Sludge Lagoon Closure Construction Certification Report, the information submitted in the Sludge Lagoon Closure Construction Certification Report is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant civil and/or criminal penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations."

Richard A. Isaac

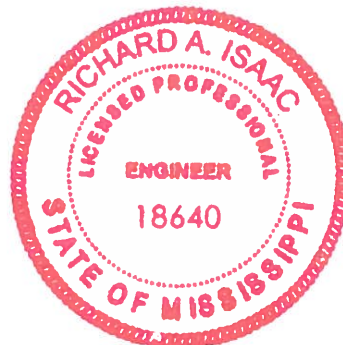
3/3/11

Signature

Date

Richard A. Isaac, P.E.

Name



On this, the 3rd day of March 2011, before me, a notary public, the above signed person, known to me to be the person whose name is subscribed to the within instrument and acknowledged that he executed the same for purposes therein contained.

In witness whereof, I hereunto set my hand and official seal.

Kathleen Alleman

Notary Public



KATHLEEN ALLEMAN  
Notary Public  
In and for the State of Ohio  
My Commission Expires  
August 11, 2014



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## Section 1

# Introduction

- State the C.A. objective from the CHS (pg. 1-3, 1-4 of C/P-Plan)
- State specific objectives of Sol/Star (P. 2-3 of C/P-Plan) & renewed 7/29/10

This Sludge Lagoon Closure Construction Certification Report (Certification Report) has been prepared in accordance with the Corrective Action for the Site under the HSWA portion of the RCRA Permit dated July 31, 1998 and modified on December 23, 2005 between the United States Environmental Protection Agency (U.S. EPA), Region 4 and ArvinMeritor, Inc. to document the implementation of the closure of the former Sludge Lagoon, Solid Waste Management Unit (SWMU) 4 (Sludge Lagoon) at the former ArvinMeritor, Inc. facility in Grenada, Mississippi. As outlined in the approved Closure and Post-Closure Care Plan (Closure Plan), the Certification Report provides detailed discussions and information that describes the methodologies used to meet the design objectives and standards identified for implementation of the Sludge Lagoon closure and to assess compliance with the Construction Quality Assurance Plan (CQAP). The Certification Report includes discussions related to the following items:

- Documentation that the project is consistent with the approved design and that the closure of the Sludge Lagoon was adequately performed;
- Summary of the Sludge Lagoon closure and certification of the design and construction;
- Explanation of any alterations/modifications to the design and why these were necessary for the project; and
- Results of monitoring indicating that the Sludge Lagoon closure will meet or exceed the performance criteria.

To address the previously listed items, the Certification Report includes the following sections which discuss the construction activities performed, material and construction quality assurance/quality control (QA/QC) protocols, including both field and laboratory QA/QC testing, field oversight and monitoring activities, and health and safety protocols performed to implement the Sludge Lagoon closure:

- Initial Site Activities
- Sludge Solidification
- Final Cover System Construction
- Site Restoration

Results of QA/QC testing are discussed in the report narrative and are summarized in tables included as appendices. Any alterations/modifications and other changes from the approved Closure Plan are noted and discussed in Section 1.1 of the Certification Report. Certification statements for ArvinMeritor, Inc. and the certifying Professional Engineer are included as Pages viii and x, respectively.

The field work was performed from April 19, 2010 to August 11, 2010 by Compass Environmental, Inc. doing business as WRScompass of Chicago, Illinois under the direction of Michael Slovensky (Senior Site Manager) and Jeffrey Habegger (Senior Project Manager). Brown and Caldwell (BC) of Columbus, Ohio performed resident inspection services with Richard A. Isaac, P.E., Erik McPeck, P.E., LEED G.A., Nate Givens, E.I., Brian Jones, P.E., and Matthew S. Aufman, P.G. who provided day-to-day observations and documentation of the Sludge Lagoon closure. Daily field logs and construction/installation photographs are included in Appendices A and B, respectively. Elena R. Goodhall, P.E. of BC provided project management and Richard A. Isaac, P.E. of BC also served as the certifying engineer. Qualifications for Ms. Goodhall, Mr. Isaac, Mr. McPeck, Mr. Givens, Mr. Jones, and Mr. Aufman are included in Appendix C.

Project Record Drawings are included that graphically present the construction of the Sludge Lagoon closure in Appendix D.

For the purposes of this Certification Report, construction quality assurance (CQA) is used to refer to activities performed by BC, where quality control (QC) refers to observation and testing activities performed by WRScompass.

## 1.1 Alterations/Modifications from the Approved Closure and Post-Closure Care Plan

During the course of the Sludge Lagoon closure implementation activities, minor alterations/modifications from the approved Closure Plan were implemented in the field. These minor alterations/modifications are listed below, and are also reflected on the Project Record Drawings included in Appendix D:

- The ASTM standards for QA/QC testing for the Type I Portland cement and the lime kiln dust (LKD) were revised to be ASTM C150/C150M-09 Standard Specification for Portland Cement and ASTM C25-06 Standard Test Methods for Chemical Analysis of Limestone, Quicklime, and Hydrated Lime, respectively. The ASTM standard, ASTM C311-07 Standard Test Methods for Sampling and Testing Fly Ash or Natural Pozzolans for Use in Portland-Cement Concrete, presented in the specifications is incorrect.
- Due to revising the ASTM standard for LKD from ASTM C311-07 to ASTM C25-06, the percent free lime in the LKD was revised to be equal to or greater than 20 percent.
- The Closure Plan indicated that the method used to determine that the sludge solidification mixing was in contact with the lagoon bottom and side slope would be to have an individual stand at the edge of the sludge material in each solidification cell and check the depth to the bottom of the lagoon using a survey rod. The actual moisture content of the sludge material ranged from 314% to 1,149%. As a result, an individual could not stand safely on the sludge while the sludge had little to no strength until the solidification process was complete. Based on the desire to perform the work under safe working conditions, the method used to determine the sludge solidification mixing was by visual observation of the clay material in the bucket of the excavator used to perform the mixing. The clay material from the lagoon bottom and side slopes had a distinct orange to yellow orange color and was very different from the black sludge material color. In each solidification cell, the excavator operator would bring to the surface two to four inches of clay material from the bottom and side slopes of the lagoon for visual observation. BC personnel recorded the visual observation of the clay material in the field book.
- Because of the dense trees around the perimeter of the berm and on the berm of the former sludge lagoon, substantial roots were present in the anchor trench excavated from the northwest corner running approximately 40 feet along the north side of the limits of the final cover system. Since the roots present in the anchor trench could potentially compromise the integrity of the geosynthetic materials placed in the anchor trench, the geosynthetics anchor trench at the perimeter of the final cover system was not constructed. Additionally, due to the close proximity of the former landfill area located to the south and southwest of the former sludge lagoon, material placed in the landfill was encountered approximately 18 inches below the ground surface when excavating the anchor trench from the southwest corner running approximately 30 feet along the south side of the limits of the final cover system. Therefore, the geosynthetics "run out" method was used in lieu of an anchor trench. The "run out" method is an industry-accepted method for terminating geosynthetic materials in construction of final cover systems.

- Seeding with a temporary seed mix conducive to the harsh climate conditions (extreme temperatures, humidity, heat index, and lack of moisture in the form of precipitation) was used in lieu of the permanent seed mix. Use of the temporary seed mix was discussed with the National Resources Conservation Service (NRCS) Grenada Field Office to obtain the proper species and amount of seed to use and any additives (lime, fertilizer, etc.) that could enhance the temporary seed mix to germinate in the harsh climate conditions. The permanent seeding was performed on October 15, 2010.

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## Section 2

# Site Preparation

## 2.1 Contractor Mobilization

WRScompass mobilized to the site on April 19, 2010 to start setting up operations to perform the closure of the sludge lagoon. Various types and pieces of equipment were mobilized and demobilized to and from the site throughout the performance of the closure activities and this equipment is discussed in the appropriate sections of the Certification Report. The following provides a list of resources and equipment mobilized to the site as part of the site preparation to begin the closure activities:

- Portable office trailer
- Tool trailers with various equipment, hand tools, office equipment, and supplies
- Winco MD65, 60K and Whisper Wat 15MQ portable electric power generators
- 1,000-gallon diesel fuel tank with secondary containment and dispenser
- Dodge, 4-wheel drive, crew cab, pickup trucks
- Portable sanitary toilet
- Hand wash station
- Roll-off dumpster
- Personnel
  - Site supervisor
  - Project manager
  - Equipment operators
  - Laborers

The portable sanitary toilet and hand wash station were serviced weekly and the roll-off dumpster was removed and replaced on an as-needed basis. The roll-off dumpsters were provided by Resourceful Environmental Services, Inc. (RES) of Ripley, MS, with offsite disposal of trash, rubbish, etc. delivered to Joe Reed and Company Class I Rubbish Site in Bolivar County, MS. Copies of the Certificate of Coverage and the Certificate of Competency from the State of Mississippi, Department of Environmental Quality (MDEQ), Office of Pollution Control for the Joe Reed and Company Class I Rubbish Site are provided in Appendix E.

## 2.2 Erosion and Sediment Control

Erosion and sediment control for the site was under the jurisdiction and provisions of the MDEQ, Office of Pollution Control: Small Construction General Permit for Land Disturbing Activities of One (1) to Less Than Five (5) Acres. The following documents were required for coverage under the Small Construction General Permit:

- ACT 4: Small Construction Notice of Intent (SCNOI).
- ACT 5: Storm Water Pollution Prevention Plan (SWP3).



BC prepared the SCNOI for the site and WRScompass prepared the SWP3. A condition of the Small Construction General Permit was performance of an erosion and sediment inspection at least weekly for a minimum of four inspections per month. The BC CQA Inspector performed the weekly erosion/sediment inspections and following storm events. Copies of the SCNOI, SWP3, and Erosion/Sediment Inspection Forms are provided in Appendix F.

### 2.2.1 Materials

The erosion/sediment control materials installed at the site were as follows:

- Mutual Industries, Inc., MISF 150 Fabric, 36" x 100' rolls; 1-1/2" x 1-1/2" x 48" (nominal) oak stakes on 10' centers
- Suncoast Fabrics, 632-10-12.5 GA. Field Fence

Product information for the materials is provided in Appendix G.

### 2.2.2 Installation

WRScompass performed installation of the silt fence. Equipment used for installing the silt fence included the following:

- Ditch Witch 1230
- Various hand tools

The following methods were used to install the silt fence:

- Performed trenching for the silt fence anchor.
- Unrolled silt fence panels and placed bottom of silt fence in the trench leaving no more than 36 inches of silt fence material above the trench.
- Pulled the stakes tight and pounded the stakes into the ground at the backside of the trench.
- Placed the silt fence fabric in the trench and backfilled the trench with the excavated soil.
- Placed the wire mesh against the stakes and stapled the wire mesh to the stakes.

### 2.2.3 Inspection

The BC CQA Inspector visually inspected the installation of the silt fence for workmanship and continuity including the following:

- Proper location and trench depth.
- Placement of the silt fence in the anchor trench.
- No sagging of the silt fence fabric between stakes.
- Proper backfilling of the anchor trench.
- Placement and adequate securing of the wire mesh to the stakes.

## 2.3 Site Clearing and Grubbing

*Site figures*

*explain?*

Following installation of the erosion/sediment controls, WRScompass performed site-clearing activities at the sludge lagoon area and at the onsite Railroad Borrow Area. Vegetation clearing of the sludge lagoon area and adjacent areas was performed from April 21, 2010 through May 5, 2010, including removal of vegetation and structures. Vegetation removal included ground cover, brush, and trees. Structures removed included the perimeter chain-link fence, a designated section of ball field fence removed and relocated, inlet and outlet lagoon structures and designated sections of buried pipelines and electric conduit.

*explain*

Clearing activities along the Railroad Borrow Area alignment was performed from April 29, 2010 through May 7, 2010, including removal of the chain-link fence, vegetation, brush, and small to medium diameter (less than 12 inches) trees. Removal of large trees and stump grinding along the Railroad Borrow Area alignment was performed from June 15, 2010 through June 24, 2010.

### 2.3.1 Sludge Lagoon Area

Site clearing and grubbing and structure removal was performed using the following equipment:

- Bobcat T250 skid steer
- Crazy Bear Cat Model 73420 chipper
- Hitachi 20LC track-mounted excavator with mechanical thumb
- Caterpillar 207B skid steer with mulcher attachment
- John Deere 650J dozer with grubbing attachment
- Chevrolet 70, 5 yd end dump truck
- Husquarna 455 Rancher chainsaw
- Skil chop saw
- Various hand tools

The following activities were performed for clearing, grubbing, and structure removal at the sludge lagoon:

- Removed chain-link fence fabric, top rails, man gate, and appurtenances; placed material in the roll-off box for offsite disposal.
- Pulled fence posts and concrete with skid steer; placed in the roll-off box for offsite disposal.
- Cut trees and underbrush, trimmed branches and limbs, cut tree trunks into approximate 10-foot lengths and loaded on trailers for offsite removal.
- Chipped branches, limbs, and underbrush.
- Mulched ground cover, brush, small trees (less than 6-inch diameter), and stumps.
- Grubbed ground cover, stumps, roots and graded into piles; brush piles loaded, transported, and placed in the designated placement area to the south of the onsite PRB Wall.
- Moved and relocated the designated section of ball field fence.
- Removed the designated ball field light pole and cut into 10-12-foot sections.
- Removed and abandoned the inlet and outlet pipelines and electric conduit.
  - Disconnected and removed electric boxes and control panels; placed in the roll-off box for offsite disposal.
  - Excavated the soil cover above the pipelines and conduit.
  - Cut and drained the pipelines.
  - Removed the pipe and conduit and placed on the interior slope of the lagoon berm.
  - Glued PVC caps on the terminal ends of the pipelines to remain.
  - Backfilled the excavations and marked the capped ends of the abandoned pipelines for field survey location.

The BC CQA Inspector visually observed and documented the site clearing activities from the lagoon berm and adjacent areas.

### 2.3.2 Railroad Borrow Area

Site clearing and grubbing and structure removal was performed using the following equipment:

- Bobcat T250 skid steer
- Caterpillar 207B skid steer with mulcher attachment
- Terex TXC 255 LC-1 track-mounted excavator
- John Deere 650J dozer
- Caterpillar 215 track-mounted excavator with mechanical thumb
- Log hauling truck
- Tub grinder
- C-Series Bobcat skid steer
- Stump grinder
- Husquarna 455 Rancher chainsaw
- Skil chop saw
- Various hand tools

The following activities were performed for clearing, grubbing, and structure removal at the Railroad Borrow Area:

- Removed chain-link fence fabric, top rails, and appurtenances; placed material in the roll-off box for offsite disposal.
- Pulled fence posts and concrete with skid steer; placed in the roll-off box for offsite disposal.
- Cut trees and underbrush, trimmed branches and limbs, cut tree trunks into approximate 10-foot lengths and loaded on trailers for offsite removal.
- Mulched ground cover, brush, small trees (less than 6-inch diameter), and stumps.
- Grubbed ground cover and graded into windrows along northeast side of the embankment.
- Cut large diameter (greater than 12 inches), <sup>trees</sup> trimmed branches and limbs, and loaded cut trees onto log hauling truck for offsite removal.
- Loaded branches and limbs into tub grinder and mulched.
- Ground remaining tree stumps to a minimum depth of 6-inches below the ground surface.

The BC CQA Inspector visually observed and documented the site clearing activities at the Railroad Borrow Area.

## 2.4 Topsoil Removal

Topsoil stripping was performed by S&L Construction of Grenada, MS on May 6, 2010 under the direction of WRScompass. The John Deere 650J dozer was used to blade approximately four inches of soil material from the exterior slope and top of the sludge lagoon berm. The "topsoil" was graded into small stockpiles at the southeast corner, along the north side, and at the northwest corner of the lagoon area.

## Section 3

# Sludge Solidification

WRscompass performed the solidification of the sludge material in the lagoon. BC provided CQA services for the performance of the sludge material solidification. The sludge solidification, performed from May 6, 2010 through June 21, 2010, consisted of the following activities:

- Lagoon dewatering
- Unloading and storage of reagents
- Sludge solidification

BC's field inspector(s) performed field oversight to document the materials, equipment, solidification methods, and inspection activities and tests performed for the sludge solidification. The following sections of the Certification Report provide a summary of the written documentation for the materials and equipment, solidification methods, inspections, and tests performed during performance of the sludge solidification. Photographic documentation is provided in Appendix B. Information, data, and test results for the QC and QA requirements for materials and solidification methods is provided in appendices noted within each section of the Sludge Solidification discussion.

## 3.1 Lagoon Dewatering

Water was present predominantly in the middle and western side of the sludge lagoon. Before solidification of the sludge material could be initiated, the water on the surface of the sludge material needed to be removed. The lagoon dewatering operation pumped 360,200 gallons of water from May 6, 2010 through May 24, 2010. The water was pumped to a designated drop inlet structure located northwest of the Grenada Stamping & Assembly Plant for processing through the ICE Industries, Inc. discharge permit with the City of Grenada, MS. The following sections discuss the lagoon dewatering including material, equipment, and procedures used in the dewatering process.

### 3.1.1 Equipment and Materials

The sludge lagoon dewatering was performed using the following equipment and materials:

- Baker Corporation dual-cell bag filter and filter bags
- 3-inch Honda GX160 trash pump
- Yamaha Powermate portable generator
- 2-inch electric pump
- Master Meter High-flow Cold-Water Totalizer, 4-350 gpm
- McELROY No. 14 Pitbull fusion equipment
- 2-inch diameter SDR11 high density polyethylene (HDPE) pipe
- 4-inch diameter Schedule 40 polyvinyl chloride (PVC) pipe
- 2 x 4 boards
- Wire screen
- Plastic matting

### 3.1.2 Lagoon Dewatering Procedures

The sludge lagoon dewatering installation and procedures included the following:

- Butt-fusion welded the 2-inch diameter HDPE pipe, including required elbows and flange connections.
- Laid 2-inch discharge pipeline from the sludge lagoon beneath Highway 332 via concrete box culvert around closed equalization pond to the designated drop inlet discharge point. *Site Figure.*
  - Constructed a road crossing with 2-inch discharge pipeline slipped through the 4-inch diameter PVC carrier pipe.
  - Secured the 2-inch discharge pipeline inside the drop inlet and placed the metal grating back on the drop inlet.
- Installed the Master Meter Totalizer in the 2-inch discharge pipeline using flange connections.
- Set the dual-cell bag filter, generator, trash pump, and electric pump in place at the interior slope of the lagoon berm.
- Made connections to each piece of equipment with hoses and clamps.
- Secured the electric pump to the Styrofoam boat so the pump would be at a 12-inch depth below the water surface.
- Positioned the boat at a point approximately halfway across the lagoon and secured with rope and metal fence posts.
- Performed a pumping test of the equipment and Master Meter Totalizer using 900 gallons of water pumped back into the lagoon.
- Turned on the pumping system to begin dewatering the sludge lagoon.
- Monitored the system for leaks and recorded flow readings periodically during the dewatering operations.
- Performed routine monitoring/maintenance of the dewatering system including changing the filter bags and fueling the generator and trash pump.

As the water level in the sludge lagoon dropped, sediment and loose vegetation was pulled to the pump, which caused clogging of the pump intake and pump maintenance issues. WRScompass constructed a box made from the 2x4 boards, wire screen and plastic matting. The electric pump was placed inside the box and positioned at a depth approximately 6-inches below the water surface. The box allowed water to enter, but kept the sediment and vegetation away from the pump intake.

### 3.1.3 Lagoon Dewatering Inspections

The BC CQA Inspector performed the following inspection during the lagoon dewatering activity:

- Visually inspected the pipe and flow meter to verify there were no signs of damage.
- Documented the discharge pipeline installation.
- Visually observed and documented the dewatering system pump test.
- Periodically throughout the workday took readings of the Master Meter Totalizer and recorded the gallons of water discharged and at the end of each workday.

At the request of ICE Industries, Inc., a sample of the water was collected using a plastic sampling bottle from the discharge point at the drop inlet. The BC CQA Inspector delivered the discharge water sample to Don Williams of ICE Industries, Inc., who performed a visual inspection of the water for clarity, the presence of solids, and pH. The pH of the discharge water ranged from 6.9 to 7.8.



On May 12, 2010, the BC CQA Inspector noted fine solids in the sample bottle. The BC CQA Inspector immediately told WRScompass to shutdown the dewatering system. An investigation of why the solids were in the discharge water determined that the water in the lagoon had been drawn down to the point where the pump was near the bottom of the lagoon. Based on discussions between the BC CQA Inspector, Don Williams of ICE Industries, Inc., and WRScompass, the following lagoon dewatering and sampling procedures were implemented:

- The pump was repositioned in a deeper part of the lagoon.
- The dewatering system was restarted and operated for a period of 30 minutes at which time the BC CQA Inspector collected a sample of the discharge water and the dewatering system was shutdown.
- The discharge water sample was delivered to Don Williams for a check of clarity, the presence of solids, and pH. Don Williams observed that there were no issues with the solids.
- WRScompass began monitoring the pumps on a 30-minute cycle.
- The filters in the bag filter were checked every hour and were changed as needed.
- The BC CQA Inspector collected a discharge water sample 30 minutes after the dewatering system was turned on at the beginning of each workday and every 2-3 hours throughout the day.
- The samples were allowed to sit for a period of 30 minutes and a visual check for solids was performed.
- If solids were present, the dewatering system would be shutdown and the BC CQA Inspector would notify Don Williams for evaluation.
- The dewatering system would be re-evaluated for depth of water remaining in the lagoon, the need to move the pump to deeper water, etc.
- If solids were not present, the dewatering system remained operational.

The presence of solids in the discharge was not noticed in any samples from May 13, 2010 until the lagoon dewatering operation was suspended on May 24, 2010.

## 3.2 Sludge Solidification

The sludge solidification operations included the unloading of reagents (Type I Portland cement and LKD) and in-situ mixing of the reagents with the sludge material in designated cells. The sludge lagoon was divided into 12 cells. The cell boundaries were set based on the physical reach limits of the hydraulic excavator and taking into account safety issues. Solidifying the sludge by cell provided WRScompass with a way to track progress and monitor the volume and ratio of reagents being used to solidify the sludge. The reagent materials, reagent unloading procedures, and in-situ mixing procedures are discussed in the following sections of the Certification Report.

### 3.2.1 Solidification Materials - Reagents

The solidification process was performed by adding reagents at concentrations determined from the Lagoon Solidification/Stabilization Study. Results of the Lagoon Solidification/Stabilization Study determined that mixing 7.5 percent Type I Portland cement and 20 percent LKD to the sludge material provided the optimum strength required to construct the final cover system on top of the solidified sludge. A discussion of the reagents used to solidify the sludge material is presented in the following sections.

#### 3.2.1.1 Type I Portland Cement

The Type I Portland cement, 581.11 tons, was obtained from Holcim (US) Inc. (Holcim) from two plants: one plant in Theodore, AL and the second plant in Bloomsdale, MO. Material Certification Reports for



the Type I Portland cement were submitted from Holcim through WRScompass as discussed in Section 3.4.1.

### 3.2.1.2 Lime Kiln Dust (LKD)

The LKD was obtained from two sources: Lhoist North America, Inc. (Lhoist) and Mintek Resources, Inc. (Mintek) of Beavercreek, OH. The LKD supplied by Lhoist, 790.41 tons, came from the O'Neal Kilns in Shelby, AL and the LKD supplied by Mintek, 504.97 tons, came from the Cheney Lime Facility in Calera, AL. Material Certification Reports for the LKD were submitted from Lhoist and Mintek through WRScompass as discussed in Section 3.4.1.

### 3.2.2 Reagent Unloading

Equipment used for unloading the reagents included the following:

- Caterpillar 330CL track-mounted excavator
- Komatsu PC 300LC track-mounted excavator
- Terex TXC 255 LC-1 track-mounted excavator
- Bobcat T250 skid steer
- GEHL RS5-34 forklift
- 150 ton reagent storage pig and baghouse
- Gardner Denver CycloBlower
- Field fabricated steel unloading vessels with 24x84 Beane filter bags
- 6-inch diameter reinforced hoses
- 20-foot Fiberglass extension ladder
- Various hand tools

Reagent unloading was performed using a variety of methods until unloading vessels made from steel tanks with bag filters were developed and used for the majority of the reagent unloading. Other unloading methods included blowing the reagents under pressure beneath plastic coverings and construction of a wood-frame cage covered with 8 oz filter fabric. Since it was not feasible to adequately control the release of dust as the reagents were being unloaded using these methods, WRScompass modified their unloading procedures.

Instead, WRScompass used a 150-ton capacity storage vessel to store LKD that was delivered before the sludge solidification operations were initiated. The LKD in the storage vessel was also used to augment the LKD when delays in the direct delivery of the LKD from the kilns occurred. The LKD stored in the storage vessel was used during the later stages of the sludge mixing operations and the storage vessel was removed from the site when emptied.

The general reagent unloading procedures using the steel tanks with bag filters included the following:

- Each truck driver was checked in at the office trailer.
- The truck driver was directed to the area where reagent loading was being performed for the day.
- WRScompass assisted with connection of hoses to the proper unloading vessel.
- Truck drivers were instructed to unload the reagents using between 5 to 7 psi of pressure to aid with minimizing potential dust issues during the unloading operation.
- The unloading operation was monitored by WRScompass personnel at the delivery truck and at the unloading vessel. Monitoring included the following:
  - Loose and/or disconnected hoses.

- Proper seating and connection of the bag filters on the unloading vessels.
- Volume of reagent in the unloading vessel; the unloading operation was shutdown and the unloading vessel moved if the volume in the unloading vessel was such that the unloading vessel began to raise up from its position on the ground.
- The unloading operation was immediately shutdown if any leaks were observed (i.e. loose/broken hose connections, holes developed in the hoses, filter bags loosening or developing holes, raising unloading vessels, etc.).
- The cause of the leak was corrected and the unloading operations were resumed.
- When the hoppers were emptied, the truck driver and WRScompass personnel checked all valves to make sure the valves were shut.
- The truck driver returned to the office trailer, provided the appropriate paperwork, and logged off the site.
- The unloading vessels were moved and positioned using the hydraulic excavators.
- Between and during the unloading operations, WRScompass personnel checked the filter bags for holes/tears and proper connection to the barrels on top of the unloading vessels; filter bags were removed and connected back on the barrels as required and replaced if holes and/or tears were discovered.
- The unloaded reagents were covered with plastic sheeting held in place with 2x4 boards when the potential for precipitation was imminent.

### 3.2.3 Sludge Solidification

Equipment used to perform the in-situ mixing for sludge solidification included the following:

- Komatsu PC 300LC track-mounted hydraulic excavator
- Terex TXC 255 LC-1 track-mounted hydraulic excavator
- Wooden crane mats

WRScompass used in-situ mixing of the reagents with the sludge material to perform the sludge solidification. The bucket of the track-mounted hydraulic excavator (excavator) was used to place the appropriate volume of reagents in the treatment cell and mix the reagents into the sludge material to achieve a homogeneous mixture. The general in-situ mixing procedures for solidifying the sludge material included the following:

- The lagoon was divided into 12 cells *figure* with the approximate boundaries of each cell delineated in the field using survey lath with ribbon and orange cones placed across the interior lagoon berm slope and the top of the berm. Offset stakes were placed in line with the cell boundary markers at locations where no disturbance would occur to be able to reset the cell boundaries, if necessary.
- The wooden crane mats were placed at the edge of the cell providing a stable platform for the excavator.
- The excavator bucket was used to load reagents from the reagent stockpiles and introduced into the sludge material. The reagents were introduced into the sludge material using one of the two following methods as measures to control dust from the reagents:
  - The reagent material was spread evenly across the top of the sludge material within the swing radius of the excavator. This method was used when no wind or minor wind, not blowing to the northeast, was occurring. *explain*
  - The excavator bucket was pushed through the sludge material to the bottom of the lagoon with the reagent material released from the bucket at the bottom of the sludge material.

This method was used when higher wind was blowing or if the wind was blowing to the north-east.

- The unloading of the reagents was coordinated with the area of the lagoon and cell being solidified so the reagent stockpiles were within reach of the excavator stick limits.
- Following introduction of the reagents into the sludge material, the excavator operator methodically mixed the reagents and sludge material together to achieve a homogeneous mixture. The mixing occurred by moving the excavator stick and bucket in both a forward and backward and up and down motion within the radius of the excavator stick.
- As the reagents and sludge material were mixed, the operator moved and positioned the excavator on the crane mats to create overlapping radii of reagent/sludge mixture.
- The mixing was deemed sufficient when the reagent/sludge mixture tightened; this was determined by both visual observation and resistance felt by the excavator operator as the excavator stick and bucket were being moved through the reagent/sludge mixture.
- The crane mats were repositioned to allow access to the entire cell boundary and the mixing process previously described was performed.
- The excavator operator notified the WRScompass Quality Control (QC) Inspector when the reagent/sludge mixture was completed for sample collection and field testing. Based on the results of the field testing, a decision was made to collect cylinders for submittal to the laboratory for strength testing or adding more reagents and continue mixing.
- At the beginning of each workday, the excavator walked to the leading edge of the crane mats and tested the strength of the sludge solidified the previous day by placing the bucket on top of the solidified sludge and exerting downward pressure. This exercise was performed to determine if the crane mats could be moved forward to begin mixing in a new area of the cell or in a new cell. *where? how long to analyze*
- If a determination was made that the sludge solidified on the previous day had not hardened and set up enough to allow the crane mats and, subsequently, the excavator to set on the solidified sludge, the solidification operations were moved to another area of the lagoon or cell; the sludge solidification operation always took into account operator safety when deciding whether or not to position the crane mats and excavator on a previously solidified section of a cell.

The sludge solidification operations progressed through each cell until the sludge material in the entire lagoon area was mixed and solidified. The general progression of the solidification operation was from Cell 1 through Cell 6, east to west, along the north side of the lagoon and then from Cell 7 through Cell 12, east to west, along the south side of the lagoon. *figure!*

### 3.2.4 Air Monitoring

The BC Inspector performed routine air monitoring to analyze the air quality for volatile organic compounds (VOCs) approximately every 15 minutes while the sludge solidification work was being performed and when intrusive work that exposed sludge material was performed. A RAE Systems MiniRAE 3000 photoionization detector (PID) with a lamp strength of 10.6 eV was used to monitor the air quality for VOCs.

The MiniRAE 3000 was calibrated daily, at the beginning of each workday and periodically throughout the day, if required to account for the affects of humidity, with 100 ppm isobutylene. The calibration results and the air monitoring results were recorded on the Air Monitoring Forms provided in Appendix H.

The action level for VOCs was a reading greater than 0.5 ppm sustained for a period of one minute or longer above the established background level set through the daily calibration of the MiniRAE 3000.

The action levels developed for detection of VOCs at the site are presented in the following table.

## VOC Monitoring

## Action Level

VOCs < 0.5 ppm above background with PID or FID

**VOCs > 0.5 ppm above background with PID or FID - monitor for the presence of vinyl chloride with colorimetric tubes**

## Level of Respiratory Protection

Level D: No respiratory protection required.

**VINYL CHLORIDE IS NOT DETECTED:**

If vinyl chloride is not detected with colorimetric tubes, increase engineering controls to reduce potential employee exposure to VOCs and re-monitor for VOCs:

If PID/FID reading for VOCs is < 5 ppm  
- Use Level D.

If PID/FID reading for VOCs is > 5 ppm  
- < 25 ppm - Use Level C (half-or full-face air-purifying respirator fitted with organic vapor filter cartridges).

If PID/FID reading for VOCs is > 25 ppm - Cease operations and evacuate work area. Contact RSUM and PM immediately.

**VINYL CHLORIDE IS DETECTED:**

Any detection of vinyl chloride > 0.5 - < 5 ppm with colorimetric tubes - use Level C (half or full-face APR fitted with organic vapor cartridges).

If vinyl chloride is detected > 5 ppm with colorimetric tubes - Cease operations and evacuate work area. Contact RSUM and PM immediately.

*What was background?*

Readings on the MiniRAE 3000 generally fluctuated between 0.0 ppm and 0.1 ppm on average. Occasional spikes up to 0.3 ppm for several seconds occurred as noted on the Air Monitoring Form. On June 11, 2010, a sustained reading fluctuating between 1.8 ppm and 2.1 ppm occurred at 754 with initiation of sludge solidification in Cell 6. The BC Inspector had WRScompass suspend the solidification activities and all personnel move up wind to the east side of the lagoon. The following steps were taken by the BC Inspector to determine the severity of the potential air quality issue:

- Re-calibrate the MiniRAE 3000
- <sup>Test</sup> Take an initial reading with no solidification work being performed
  - Reading: 0.0 ppm
- Using the RAE piston hand pump and Draeger-tubes, <sup>ed</sup> checks for the presence of vinyl chloride
  - Negative response for vinyl chloride on the Draeger-tube
- Called the BC Health and Safety Specialist in the Columbus, Ohio office and discussed the air quality issues and procedures performed in the field
  - <sup>d</sup> Receives concurrence with field procedures performed and discusses <sup>d</sup> plan of action moving forward
  - MiniRAE 3000 reads 0.0 ppm when solidification is not being performed
- BC Inspector has WRScompass resume solidification activities
  - <sup>ed</sup> MiniRAE 3000 reading fluctuating between 1.8 ppm and 2.2 ppm

*Down wind?*

*Time?*



- Using the RAE piston hand pump and Draeger-tubes, checks<sup>ed</sup> for the presence of vinyl chloride
  - Negative response for vinyl chloride on the Draeger-tube
- Change<sup>d</sup> the filter and re-calibrate<sup>d</sup> the MiniRAE 3000
  - Reading fluctuating<sup>ed</sup> between 0.0 ppm and 1.1 ppm
- Called the BC Health and Safety Specialist in the Columbus, Ohio office to discuss the air quality issues and procedures performed in the field and the plan of action moving forward.
  - BC Inspector to monitor the air quality based on the 5.0 ppm trigger level in the HASP
  - If MiniRAE 3000 reading goes to 5.0 ppm or above, enact the following plan:
  - Suspend solidification activities
  - Direct all site personnel to go to the office trailer (site rally point)
  - Call the BC Regional Safety Unit Manager
  - Discuss how to proceed and the need to upgrade PPE level

The sludge solidification activities resumed at 900 with the MiniRAE 3000 reading 0.0 ppm through 1506 when a reading of 0.1 ppm occurred for nine minutes before dropping back down to 0.0 ppm until 1650 when the solidification activities were suspended for the day. This was the only day when sustained readings of >1 ppm were observed throughout the solidification phase of the Sludge Lagoon closure.

### 3.3 Inspections

BC's CQA inspector(s) visually inspected the sludge solidification activities for workmanship and continuity. Field books were used to document the sludge solidification activities in written format with photographs used to provide visual documentation. Daily Field Logs providing a summary of the sludge solidification are provided in Appendix A with the sludge solidification photographs and descriptive photograph log provided in Appendix B. The following items were observed and documented by the BC CQA inspector during grading of the berms:

- Documented and observed the unloading of Type I Portland cement and LKD.
  - Recorded the transportation company and driver names, type of reagent, volume, and the unloading start and stop time.
- Monitored the unloading operations for dust issues and regulated the unloading activities if dust became an issue during unloading.
- Observed the collection of un-solidified and solidified sludge samples for performance of field and laboratory testing. *describe these*
- Observed the performance of field testing; slump tests for solidified sludge. *describe*
- Observed the handling operation used to add the Type I Portland cement and LKD to the sludge material.
- Observed the process used to mix the Type I Portland cement and LKD to solidify the sludge material.
- Monitored the reagent handling and mixing operations for dust issues and regulated the reagent handling and mixing activities if dust became an issue.
- Performed photographic documentation of the reagent handling and mixing operations to solidify the sludge material.

- Performed air monitoring while the sludge solidification process was being performed (see Section 3.2.4).

### 3.4 Laboratory and Field QA/QC Testing

Laboratory QC and field QA testing was performed for materials used to solidify the sludge material. The QA/QC testing was used to confirm that the materials proposed for use by WRScompass and the sludge solidification procedures were in conformance with the specifications and CQAP. The laboratory and field testing performed for the sludge material solidification are discussed in the following sections.

#### 3.4.1 Reagent Supplier's Certification Testing

WRScompass provided QC documentation for the Type I Portland cement and the LKD to the BC CQA Inspector. The Material Certification Reports are provided in Appendix I for the Type I Portland cement, for the LKD from Lhoist, and for the LKD from Mintek. The QC results satisfied the Type I Portland cement and LKD requirements in the CQAP. *- describe*

#### 3.4.2 Laboratory Reagent QA Testing

Samples of the Type I Portland cement and the LKD from Lhoist and Mintek were submitted to Construction Technology Laboratories, Inc. in Skokie, IL by the BC CQA Inspector for QA testing. The BC CQA Inspector collected Type I Portland cement and the LKD samples from random piles of the material delivered to the site. The samples were placed in new, one-gallon metal containers with the container lids tightly secured and taped to prevent opening during shipping. The samples were labeled and shipped to the laboratory following chain-of-custody protocols. *lab used?*

The QA results satisfied the Type I Portland cement and the LKD requirements in the CQAP. Copies of the laboratory results are included in Appendix J.

#### 3.4.3 Contractor's Laboratory and Field QC Testing

WRScompass collected samples of the sludge material for analysis of the moisture content. The samples were hand delivered to Willis Engineering, Inc. (Willis) of Grenada, MS following proper chain-of-custody protocols for analysis. The moisture content results for the sludge material are provided in the following summary:

Sludge Moisture Content	
Cell	Moisture Content (%)
1	362
2	411
3	491
4	839
5	755
6	775
7	314
8	434
9	856
10	959
11	1,149
12	1,148



*field test? describe*

WRScompass performed slump tests to determine if the solidified sludge possessed sufficient stiffness to make the cylinders for submittal to the laboratory for strength testing. The slump test results for each cell are as follows:

Slump Test Results	
Cell	Slump (inches)
1	0.5
2	1.5
3	1.5
4	5
5	3.25
6	5.5
7	4
8	9.5
9	7
10	6.5
11	4.5
12	4

Based on the slump test results, WRScompass collected representative samples of the solidified sludge from each cell to make the solidified sludge cylinders for strength testing. A total of eight cylinders were made for each cell with WRScompass keeping four cylinders and giving four cylinders to the BC CQA Inspector. The cylinders were hand delivered to Willis following proper chain-of-custody protocols for strength testing. The results of the strength tests are as follows:

Strength Test Results		
Cell	Strength @ 7 days (psi)	Strength @ 14 days (psi) <sup>1</sup>
1	25	
2	36	
3	20	
4	62	
5	59	
6	27	
7	42	
8	0	24
9	23	
10	13	
11	30	
12	30	

## NOTES:

14-day break was only required if the 7-day break was less than 12 psi.

*per CQAP?*

### 3.4.4 Laboratory QA Testing

Three cylinders from each cell were shipped to Construction Technology Laboratories, Inc. in Skokie, IL by the BC CQA Inspector for strength testing. The cylinders were kept onsite in a cool, shaded area for one day before shipment to the laboratory. The cylinder lids were tightly secured and taped to prevent

opening during shipping. The cylinders were labeled and shipped to the laboratory following chain-of-custody protocols. A cylinder from each cell was also archived for subsequent testing (if needed).

The test results for each cell satisfied the strength requirement of greater than or equal to 12 psi at 28 days or sooner. The strength results for the solidified sludge in each cell are provided in the following table with the laboratory results included in Appendix K.

*BC QC Testing (Construction Tech. Labs)*

Strength Test Results			
Cell	Strength @ 7 days (psi)	Strength @ 14 days (psi) <sup>1</sup>	Strength @ 16 days (psi) <sup>1</sup>
1	10	27	
2	22		
3	0	18	
4	48		
5	42		
6	14		
7	0	17	
8	0	11 <sup>(3)</sup>	17
9	13 <sup>(2)</sup>		
10	15 <sup>(2)</sup>		
11	24		
12	29		

**NOTES:**

- (1) 14-day and 16-day breaks were only required if the 7-day break was less than 12 psi.
- (2) 6-day break
- (3) 13-day break

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## Section 4

# Final Cover System

BC provided CQA services for the construction/installation of the final cover system for the former sludge lagoon. The final cover system, constructed from June 21, 2010 through July 30, 2010, consists of the following components:

- Soil material subgrade
- Low permeability clay soil subbase
- Geosynthetic barrier and drainage layer
- Drainage layer outlet
- Vegetative cover soil

*State design objectives  
(p. 2-4 - 2-10 of C/P-C Plan)  
Include final as-built drawing  
of cover & drainage system*

BC's field inspector(s) performed field oversight to document the materials, construction/installation methods, and inspection activities and tests performed for the final cover system construction/installation. The following sections of the Certification Report provide a summary of the written documentation for the materials (Section 4.1), construction/installation methods (Section 4.2), inspections (Section 4.3), and tests (Section 4.4) performed during construction/installation of the final cover system. Photographic documentation is provided in Appendix B. Information, data, and test results for the QC and QA requirements for materials and construction/installation methods is provided in appendices as noted within each section of the Final Cover System discussion.

## 4.1 Materials

The materials used in the construction of the final cover system components included the following:

- onsite soil material from the former sludge lagoon berms
- low permeability clay soil material obtained from a local off-site borrow source
- geosynthetic materials obtained from a qualified manufacturer of geosynthetic materials
- aggregate material obtained from an off-site supplier
- on-site soil material from the on-site Railroad Borrow Area

Materials for each of the final cover system components are discussed in the following sections.

### 4.1.1 Former Lagoon Berm Soil

Soil from the former lagoon berms was used to cover the solidified sludge and to create the subgrade on which the low permeability clay soil subbase was installed.

### 4.1.2 Low Permeability Clay Soil

The low permeability clay soil material was obtained from Townes Construction Company, Inc. of Grenada, MS for use as the subbase on which the geosynthetic materials were installed. The clay soil material was required to have a hydraulic conductivity ( $k$ ) of less than or equal to  $1.0 \times 10^{-5}$  centimeters per second (cm/sec).

### 4.1.3 Geosynthetics

The following geosynthetic materials, obtained from Gundle/SLT Environmental, Inc. (GSE) of Houston, TX, were used for the barrier and drainage components of the final cover system:

- GSE HD 60 mil textured geomembrane
- GSE Fabrinet HS geocomposite with 275 mil thick GSE HyperNet HS geonet and 8 oz/yd<sup>2</sup> GSE nonwoven needle punched geotextile
- HDPE extrusion welding rod
- Plastic zip ties
- Polymeric thread

The following geosynthetic materials, obtained from Williams Equipment & Supply of Oxford, MS, were used with the coarse aggregate material drainage outlet component of the final cover system:

- Cathage Mills FX-160 NS 16 oz/yd<sup>2</sup> geotextile

### 4.1.4 Coarse Aggregate

Coarse aggregate material was obtained from Memphis Stone & Gravel Company of Memphis, TN for use as the drainage outlet of the geocomposite drainage component of the final cover system. The coarse aggregate was a rock/stone material meeting the following requirements:

- AASHTO No. 57 gradation
- Permeability  $\geq 0.12$  cm/sec
- Carbonate content  $\leq 5\%$ .

The QC laboratory test results for the coarse aggregate are provided in Appendix L.

### 4.1.5 Railroad Borrow Area Soil

Soil from the Railroad Borrow Area was used to construct the vegetative cover component of the final cover system. Specific purposes of the vegetative cover soil are to cover and provide frost protection for the geosynthetic materials and provide a media for the growth of vegetation on the completed final cover system.

## 4.2 Construction/Installation Methods

WRScompass and Geo-Synthetics, Inc. (GSI) of Waukesha, WI (subcontracted by WRScompass) performed the final cover system construction/installation activities. BC's CQA inspector provided oversight of the final cover system construction/installation activities as presented in Section 4.3 of the Certification Report. Equipment used during the construction/installation of final cover system included the following:

- Soil material subgrade
  - Komatsu PC 300LC track-mounted hydraulic excavator
  - Terex TXC 255 LC-1 track-mounted hydraulic excavator
  - John Deere 650J Dozer
  - Dynapac rubber-tire vibratory sheepsfoot compactor
  - Bobcat T250 skid steer with combination bucket/grapple attachment
  - Various hand tools



- Low permeability clay soil subbase
  - John Deere 650J Dozer
  - Caterpillar D5CXL Dozer
  - Dynapac rubber-tire vibratory sheepsfoot compactor
  - Ingersoll Rand SD-45 TF Series smooth drum roller
  - Bobcat T250 skid steer with VRS73 smooth drum roller attachment
  - Various hand tools
- Geosynthetics barrier and drainage components
  - John Deere 310G rubber-tire endloader/backhoe
  - Caterpillar TL943 forklift with spreader bar
  - PWT Wedge-IT 2000 Series fusion welding machines
  - DemTech Pro-V extrusion welding machines
  - PWT Accura-Lite portable tensiometer NAL 1607
  - DemTech vacuum box testers
  - Honda 4-wheelers
  - Honda generators
  - Air compressors and air pressure gauges
  - Union Special sewing machines
  - Various hand tools.
- Coarse aggregate drainage outlet
  - Bobcat T250 skid steer with combination bucket/grapple attachment
  - Komatsu WA380 rubber-tire endloader
  - Various hand tools
- Vegetative cover soil
  - Komatsu PC 300LC track-mounted hydraulic excavator
  - Caterpillar 320C track-mounted hydraulic excavator
  - John Deere 650J Dozer
  - 12 yd end dump highway trucks
  - Various hand tools

The following sections of the Certification Report provide discussions of the construction/installation methods performed for each of the final cover system components.

#### 4.2.1 Berm Grading

The soil berms of the former sludge lagoon were excavated, graded, and compacted to construct the subgrade on which the clay material subbase was constructed. The following construction methods were performed during the grading of the lagoon berms:

- The hydraulic excavators were used to excavate the soil in the berms and place the soil inside the former berm location and on top of the solidified sludge.
- The excavated soil was spread and graded into place with the John Deere 650J dozer in 12 to 18 inch lifts across the surface of the solidified sludge.
- The thickness of each lift was controlled by visual observation.
- After each lift was graded, the lift was compacted using a Dynapac vibratory sheepsfoot compactor making a minimum of four passes over the lift.
- Following completion of the berm soil grading, the initial 25-foot grid used for the field verification surveys was laid out and documented as discussed in Section 4.3.6.

#### 4.2.2 Clay Soil Subbase

The clay soil subbase material was obtained from Townes Construction Company, Inc. (Townes) of Grenada, MS. The clay soil material passed the laboratory QC testing requirements and the QA testing requirements as discussed in Section 4.3. The following installation methods were performed during the installation of the clay soil subbase:

- Townes excavated the clay soil material and loaded the excavated clay soil in the 20-yd end dump tandem trucks.
- The trucks hauled the soil from the borrow area to the former sludge lagoon area.
- Spotters directed the trucks where to dump each load.
- The clay soil was graded to a maximum 8-inch thick loose lift with the John Deere 650J dozer.
- The thickness of each lift was controlled by visual observation.
- The spotters and the BC CQA Inspector visually monitored the graded clay soil for the presence of organic material, large rocks, roots, and other debris/foreign material. This material was removed from the clay soil.
- After each lift was graded, the lift was compacted using a Dynapac vibratory sheepsfoot compactor making a minimum of four passes over the lift.
- At the end of each workday, the surface of the top lift was sealed.
- The top lift surface was scarified before additional clay soil was placed at the beginning of each workday.
- Following completion of the clay soil placement, the field verification survey was performed to document the thickness of the clay soil as discussed in Section 4.3.6.

#### 4.2.3 Geosynthetics

Geo-Synthetics, Inc. performed the installation of the geosynthetics from July 14, 2010 through July 16, 2010. Geosynthetic materials installed included the 60 mil textured geomembrane, the geocomposite, and the geotextile component of the coarse aggregate drainage outlet. Laboratory and field QC and QA testing is discussed in Section 4.3 of the Final Cover System discussion.

Geosynthetic materials installed in the final cover system included 91,165 square feet of 60 mil textured geomembrane, 92,500 square feet of geocomposite, and approximately 9,000 square feet of geotextile component of the coarse aggregate drainage outlet.

##### 4.2.3.1 60-mil High Density Polyethylene (HDPE) Geomembrane

Panel deployment commenced on the west side and progressed to the east. The panels were oriented parallel along the slope and not across/perpendicular to the slope. The panel layout diagram is provided

in Appendix D. The following installation methods were performed during the installation of the 60 mil textured geomembrane (geomembrane):

- The subgrade was rolled and inspected for unacceptable protrusions (e.g., rocks, harden clay chunks, sticks, etc.) by WRScompass before geomembrane deployment was initiated.
- Geomembrane placement occurred on days with no rain, when ambient temperatures were above 40-degrees Fahrenheit, and after GSI accepted the subgrade for geomembrane panel placement. The Certificates of Acceptance of Subgrade Surface Preparation for Geomembrane Installation are provided in Appendix M.
- Trial welds were made at the beginning of each seaming period for each production seaming apparatus used that day prior to seaming the geomembrane panels. Trial weld discussion is presented in Section 4.4.
- GSI moved the geomembrane rolls to each deployment area using lifting straps and the Caterpillar TL943 forklift equipped with a spreader bar. The geomembrane roll inventory and panel placement summary are provided in Appendix N.
- Geomembrane rolls were deployed using the Caterpillar TL943 forklift with GSI personnel checking the alignment of the panel as the panel was deployed.
- Adjacent geomembrane panels were overlapped per manufacturer's recommendations.
- Geomembrane placement occurred in such a manner as to minimize wrinkling and to prevent crimping, scratching, and tearing of the geomembrane.
- Sand bags were placed along the edges of the geomembrane to prevent uplift by wind until the adjacent panels were seamed.
- GSI technicians performed the geomembrane seaming.
- Geomembrane material was cleaned (within the immediate weld area in front of the seaming apparatus) prior to welding to ensure the geomembrane was free of moisture, dirt, dust, debris of any kind, and foreign material which could adversely affect the formation of the seam.
- Geomembrane panels that were fusion welded using a hot-wedge welder ("fusion welder"); the hot-wedge welder created an air channel, which was used for nondestructive seam testing (see Section 4.3).
- Repair patches and capping of seams was conducted by using geomembrane sheets cut from the on-site geomembrane rolls. The geomembrane patches were placed for overlap per manufacturer's recommendations and extrusion-welded.
- Extrusion-welded repairs were vacuum tested by GSI to verify the absence of leaks (see Section 4.3).
- BC's CQA inspector visually inspected the geomembrane seams for workmanship and continuity.
- BC's CQA inspector selected representative seam samples for destructive testing, which were marked and cut out by GSI. Repair patches were extrusion welded and vacuum tested for leaks by GSI where the destructive seam samples were removed.
- Sand bags were placed on the outside edge along the perimeter of the geomembrane to prevent uplift by wind until the overlying geocomposite was installed.

#### 4.2.3.2 Geocomposite

Panel deployment commenced on the west side and progressed to the east. The panels were oriented parallel along the slope and not across/perpendicular to the slope. The following installation methods were performed during the installation of the geocomposite:

- The surface of the underlying geomembrane was inspected by the BC CQA Inspector for the presence of dirt, soil, debris of any kind, and foreign material, which could adversely affect the functioning of the geocomposite before the geocomposite deployment was initiated.
- GSI moved the geocomposite rolls to each deployment area using lifting straps and the Caterpillar TL943 forklift equipped with a spreader bar. The geocomposite roll inventory summary is provided in Appendix N.
- Geocomposite rolls were deployed using the Honda 4-wheelers in tandem with GSI personnel checking the alignment of the panel as the panel was deployed.
- Adjacent geocomposite panels were overlapped per manufacturer's recommendations.
- Geocomposite placement occurred in such a manner as to minimize wrinkling and to prevent crimping, scratching, and tearing of the geocomposite.
- Sand bags were placed along the edges of the geocomposite to prevent uplift by wind until the adjacent panels were seamed.
- Geotextile component material of the geocomposite was unfolded to expose the geonet component of the geocomposite.
- Geocomposite panels were connected (seamed) using plastic zip ties spaced a minimum of every five feet to connect the geonet from each adjacent geocomposite panel together.
- The geotextile component of the adjacent geocomposite panel was continuously sewn together using a sewing machine with polymeric thread, making a double chain stitch to create a prayer-type seam.
- Geocomposite repairs were made by placing patches cut from the on-site geocomposite rolls. The geocomposite patches were placed for overlap per manufacturer's recommendations and secured using the same procedure used to connect adjacent geocomposite panels.
- BC's CQA inspector visually inspected the geocomposite seams for workmanship and continuity.
- Sand bags were placed on the outside edge along the perimeter of the geocomposite to prevent uplift by wind until the overlying vegetative soil was placed.

#### 4.2.3.3 Geotextile

The following installation methods were performed during the installation of the geotextile component of the coarse aggregate drainage outlet:

- The surface of the underlying geocomposite where the geotextile was installed was inspected by the BC CQA Inspector for the presence of dirt, soil, debris of any kind, and foreign material.
- GSI moved the geocomposite rolls using the Caterpillar TL943 forklift.
- The geotextile was unrolled around the perimeter of the underlying geocomposite with the inside geotextile edge approximately seven feet from the outside geocomposite edge.
- The inside edge of the geotextile was heat-bonded to the geotextile component of the geocomposite using leistering tools.

#### 4.2.4 Coarse Aggregate

The following installation methods were performed during the installation of the coarse aggregate for the drainage outlet:

- Geotextile was pulled away from the outside edge of the underlying geocomposite.
- Coarse aggregate was placed along the outside edge of the geocomposite.
- A stake with a mark at the proper thickness was used as a gauge to determine the height of the placed coarse aggregate.

- Rakes and hand tools were used to spread the coarse aggregate to the required lines and grades.
- The geotextile was laid over the placed coarse aggregate.

#### 4.2.5 Vegetative Cover Soil

The vegetative cover soil was obtained from the on-site Railroad Borrow Area. The following installation methods were performed during the installation of the vegetative cover soil:

- WRScompass and Townes excavated the soil from the Railroad Borrow Area and loaded the excavated soil in the 12-yd end dump highway trucks.
- The trucks hauled the soil to the former sludge lagoon area.
- The trucks dumped each load in a manner and at locations where the trucks never came into contact with the geocomposite.
- A three-foot thick road was constructed beginning at the northwest corner of the former sludge lagoon area up to the crest of the final cover along the crest and down off of the crest at the northeast corner of the former sludge lagoon. This road was constructed to keep the trucks off the geocomposite.
- Grade markers constructed of plastic tubing with survey ribbon placed at two-foot height were placed on the geocomposite.
- The soil was pushed into place using the grade markers with the John Deere 650J dozer.
- The dozer operator directed the trucks where to dump each load of soil.
- Laborers positioned in front of the soil fill visually observed the geocomposite during soil placement and removed large rocks, sticks, and other debris/foreign material from the fill material.
- Following completion of the vegetative soil placement, the field verification survey was performed to document the thickness of the vegetative soil as discussed in Section 4.3.6.

### 4.3 Inspections

BC's CQA inspector(s) visually inspected the construction/installation of each of the final cover system components for workmanship and continuity. Field books and forms were used to document the construction/installation activities in written format with photographs used to provide visual documentation. Daily Field Logs providing a summary of the construction/installation are provided in Appendix A with the construction/installation photographs and descriptive photograph log provided in Appendix B. The following sections of the Final Cover system discussion describe the observations and inspections conducted during the construction/installation of each component of the final cover system.

#### 4.3.1 Berm Grading Inspection

The following items were observed and documented by the BC CQA inspector during grading of the berms:

- The presence of large rocks, roots, debris, foreign materials, etc. in the excavated soil during excavation and grading. These types of items when observed were removed from the soil material.
- Visually observed the placement and uniformity of the soil grading to establish the grades of the subgrade.
- Adequate number of passes with the vibratory sheepsfoot compactor.
- Establishment of the initial 25-foot grid used for the field verification surveys as discussed in Section 4.3.6.



### 4.3.2 Low Permeability Clay Soil Inspection

The following items were observed and documented by the BC CQA inspector during construction of the low permeability clay soil subbase:

- The off-site borrow area material for the presence of topsoil and/or other organic and deleterious materials.
- The quantity of material present in each load.
- Collection of delivery tickets for each load of material delivered, dumped, and accepted at the site.
- The presence of large rocks, roots, debris, foreign materials, etc. in the clay soil material. These types of items, when observed, were removed from the clay soil material.
- The placement and uniformity of the lifts to a maximum uncompacted thickness of eight inches.
- Performance of adequate number of passes (minimum of four passes) with the vibratory sheepfoot compactor.
- Sealing the surface of the top lift at the end of each workday and scarifying the top lift surface at the beginning of each workday before additional soil was placed.
- Condition of the clay soil material before the geosynthetic materials was installed.
- Performance of the field verification survey for the clay soil material thickness as discussed in Section 4.3.6.

### 4.3.3 Geosynthetics Inspection

The BC CQA Inspector visually inspected the geosynthetic materials during unloading and storage for conformance with the specifications, as well as to verify there were no signs of damage. The geosynthetic materials were logged on the Initial Roll Summary Forms and samples from random rolls were collected for submittal to the laboratory for QA testing. The geosynthetic materials were determined to be in conformance with the specifications and no visual damage to the materials was observed.

CQA forms, provided in appendices noted, were used to document daily start-up tests, deployment information, seaming information, non-destructive testing, destructive tests, and repairs for the geosynthetics. The following items were observed by the BC CQA inspector during installation of the geosynthetics:

#### 4.3.3.1 60-mil HDPE Geomembrane

Prior to and during installation, the BC CQA Inspector observed and documented the following:

- The surface on which the geomembrane was placed was free of objects that could damage the material.
  - The GSI removed identified materials and objects before installation of the geocomposite was initiated.
  - A certificate of Acceptance of Subgrade Surface Preparation for Geomembrane Installation was provided by GSI for each day that the geomembrane was installed.
- Equipment used did not damage the geomembrane or underlying subbase through handling, trafficking, excessive heat, leakage of machine operating fuels or oils, or other means.
- Seam areas were clean and free of moisture, dust, dirt, debris of any kind, and foreign material that may adversely affect the formation of the seam.
  - No moisture, dirt, excessive dust, stones, debris, or other objects were observed during seaming of the geomembrane.
- Performance of trial seams.



- Trial seams were fabricated from pieces of the actual geomembrane material and made under the same conditions as actual seams.
  - Trial welds were at least three-foot long and one foot wide (after seaming) with the seam centered lengthwise on the sample.
  - Trial seams were made at the beginning of each seaming period for each production seaming apparatus used that day.
  - Each welding operator made at least one trial seam each day.
  - GSI sampled and tested each trial seam (five peels and three shear) using a portable field tensiometer in accordance with methods for destructive tests presented in ASTM D6392.
  - Record the results of the trial seams.
- Deployment of the geomembrane parallel to the slope.
  - Each geomembrane panel deployed was seamed by the end of the workday. The Panel Seaming Log is provided in Appendix P.
- Record the roll number, panel designation, and location of each geomembrane roll deployed.
- Alignment and overlap of the adjacent geomembrane panels before initiation of seaming.
  - Wrinkles and “fishmouths” were eliminated before and during seaming.
- Seams were visually inspected for defects, burnouts, crimping, fishmouths, etc. during and following completion of each seam.
  - No defects, burnouts, crimping, fishmouths, etc. were observed for the seams made by GSI.
- Seaming, destructive and non-destructive tests, and repair information was properly marked on the geomembrane and documented in the field forms.
- Non destructive tests using air pressure were performed for all seams.
- Destructive tests were performed for each operator and welding apparatus per the specification requirements.
  - Field destructive tests were performed and laboratory and archive samples were provided by GSI to the BC CQA Inspector.
- Repairs were made using patches from the identical onsite geomembrane material. The Geomembrane Repair summary is provided in Appendix P.
  - Patches were sized to extend a minimum of six inches beyond the edge of the area being repaired.
  - Patches used in making repairs were properly extrusion welded to the geomembrane and vacuum tested for the presence of leaks.
- Adequate temporary sand bags were placed to prevent uplift by wind.
- Geomembrane panel locations, destructive test locations, and repair locations were field surveyed.

#### 4.3.3.2 Geocomposite

Prior to and during installation, the BC CQA Inspector observed and documented the following:

- The surface on which the geocomposite was placed was free of objects that could damage the material.
  - The GSI removed identified materials and objects before installation of the geocomposite was initiated.

- Equipment used did not damage the geocomposite or underlying materials through handling, trafficking, excessive heat, leakage of machine operating fuels or oils, or other means.
- Presence of dirt or excessive dust entrapped in the geocomposite that could cause clogging of the drainage system and/or stones that could damage the geocomposite material.
  - No dirt, excessive dust, stones, or other objects were observed during installation of the geocomposite.
- Deployment of the geocomposite parallel to the slope.
- Record the roll number of each geocomposite roll deployed.
- Alignment and overlap of the geonet component of the geocomposite.
- Proper and adequate placement of tying devices (plastic zip ties) along the geonet.
- Overlap of the top geotextile bonded to the geonet to be seamed.
  - Wrinkles and “fishmouths” were eliminated before sewing of the top geotextile was initiated.
  - Sewn seams were “prayer” type with a double lock stitch using polymeric thread.
- Repairs were made using patches from the identical onsite geocomposite material.
  - Patches were sized to extend a minimum of six inches beyond the edge of the area being repaired.
  - Patches used in making repairs were properly tied and sewn to the underlying geocomposite.
- Adequate temporary sand bags were placed to prevent uplift by wind.

#### 4.3.3.3 Geotextile

- Placement in the proper location at the edge of the geocomposite.
- Proper and adequate bonding of the geotextile to the upper geotextile component of the geocomposite.
- No damage to the upper geotextile component of the geocomposite.
- Anchoring of the geotextile edge with sandbags to prevent uplift from winds before the vegetative cover soil was placed.

#### 4.3.4 Coarse Aggregate Inspection

The following items were observed and documented by the BC CQA inspector during construction of the coarse aggregate component of the drainage outlet:

- Approved aggregate material was delivered to the site.
- Geotextile was laid back out of the way for placement of the coarse aggregate on the geocomposite.
- Adequate volume and thickness of coarse aggregate placed.
- Proper lines and grades of the placed coarse aggregate.
- Proper coverage of the coarse aggregate with the geotextile following placement of the coarse aggregate.

#### 4.3.5 Vegetative Cover Soil Inspection

The following items were observed and documented by the BC CQA inspector during construction of the vegetative cover soil:

- The presence of large rocks, roots, debris, foreign materials, etc. in the soil material. These types of items, when observed, were removed from the clay soil material.

- The placement and uniformity of the lifts of vegetative cover soil placed and graded.
- The underlying geocomposite for the presence of wrinkles, rolls, tears, pullouts, etc.
- Scarifying the top lift surface at the beginning of each workday before additional soil was placed.
- Performance of the field verification survey for the vegetative cover soil thickness as discussed in Section 4.3.6.

#### 4.3.6 Field Verification Surveys

Record field surveying was performed for WRScompass by EMC Surveying and Mapping, Inc. (EMC) of Grenada, MS. Field survey work was performed by or under the guidance of Jake Mattox, a licensed professional surveyor in the State of Mississippi. Field survey work was performed using Riegl VZ400 System and Trimble R8LGNCS GPS instruments. EMC performed field survey work for the following:

- Horizontal and vertical control at the former sludge lagoon and along the Railroad Borrow Area alignment.
- Horizontal coordinates, vertical elevations, and contour drawings for the following components of the former sludge lagoon closure project:
  - Surface of water present in the former sludge lagoon before sludge solidification activities were initiated.
  - Surface of the sludge material present in the former sludge lagoon before sludge solidification activities were initiated and after the sludge solidification was completed.
- The 25-foot grid with horizontal coordinates and vertical elevations of the top of the clay soil material subbase.
- The 25-foot grid with horizontal coordinates and vertical elevations of the top of the vegetative cover soil.
- Location of the geomembrane panels.
- Location of the geomembrane destructive test sample locations.
- Location of the geomembrane repairs.

The 25-foot grid was established to verify installation of the required thickness of the clay soil material subbase and the vegetative cover soil components of the final cover system. The top of the subgrade (established by excavating and grading the former lagoon berm soil material), top of the clay soil material subbase, and top of the vegetative cover soil layer were surveyed at the same horizontal coordinates so that direct measurement of the installed thickness of the clay soil material subbase, and top of the vegetative cover soil layer could be determined and verified. WRScompass used the information from the field verification surveys to redistribute and regrade the material for the clay soil material subbase and the vegetative cover soil layer to ensure the required thickness of each of these components was present above the solidified sludge material. Record Field survey information is provided on the Project Record Drawings for the appropriate layer including point number, elevations, and thickness in Appendix D.

Due to a scheduling conflict and the desire to keep the field construction activities on schedule, WRScompass subcontracted Crowder Engineering & Surveying, Inc. (CES) of Ackerman, MS to establish the 25-foot grid with horizontal coordinates and vertical elevations of the subgrade. CES used a Leica Robotic Total Station, EGL1/TCA1100L, to establish the base 25-foot grid. The horizontal coordinates and vertical elevations for each 25-foot grid point was provided to EMC for use in performing the thickness verification field surveys for the clay soil material subbase and the vegetative cover soil layers.

## 4.4 Laboratory and Field QA/QC Testing

Laboratory QC and field QA testing was performed for materials used to construct the final cover system. The QA/QC testing was used to confirm that the materials proposed for use by WRScompass and the construction/installation procedures were in conformance with the specifications and CQAP. The laboratory and field testing performed for the low permeability clay soil and the geosynthetics are discussed in the following sections.

### 4.4.1 Low Permeability Clay Soil Testing

Townes Construction Company, Inc. (Townes Construction) of Grenada, MS supplied the low permeability ( $\leq 1 \times 10^{-05}$  cm/sec) clay soil. The suitability of the low permeability clay soil was determined through the performance of geotechnical laboratory QC testing for two samples collected from the Townes Construction borrow area. *who?*

Brown and Caldwell performed field QA testing on the clay soil material following installation by WRScompass. In-situ moisture/density tests were performed on each lift of clay soil material placed and compacted. The following sections provide a discussion of the clay soil material laboratory QC and field QA testing. The QC laboratory and QA field test results for the clay soil material are provided in Appendix O.

#### 4.4.1.1 Clay Soil Laboratory QC Testing

Willis Engineering, Inc. (Willis) of Grenada, MS, under the direction of Brown and Caldwell, collected two representative samples of the clay soil material from the Townes Construction borrow area. Willis performed the following geotechnical laboratory tests for each sample:

- Moisture content
- Unified soil classification
- Atterberg Limits
- Sieve and hydrometer
- Standard Proctor
- Permeability

The laboratory QC test results for the clay soil material are provided in Appendix O.

#### 4.4.1.2 Clay Soil Field QA Testing

The minimum compaction specification for the clay soil material was 95 percent of the maximum dry density as determined by the standard Proctor. Willis Engineering, Inc. (Willis) of Grenada, MS, under the direction of Brown and Caldwell, performed the in-situ moisture/density testing using a nuclear density gauge for at least five tests per lift per acre in accordance with the CQAP prior to acceptance of the lift by the BC CQA Inspector. A total of 25 in-situ moisture/density tests were performed during the construction of the clay soil subbase. The in-situ moisture/density test results are provided in Appendix O. All 25 tests passed for the clay soil subbase.

### 4.4.2 Geosynthetics Testing

Manufacturer's QC and independent QA testing was performed on the geosynthetic materials to determine compliance with project and manufacturer's minimum specifications before the geosynthetic materials were installed. GSE's, the geomembrane and geocomposite manufacturer, QC testing was performed for each of the geosynthetic materials supplied for the project. Conformance QA testing was performed on the geosynthetics by Precision Geosynthetic Laboratories for Brown and Caldwell. Materials were sampled for the parameters at the minimum frequencies given in the approved CQAP. The BC



CQA Inspector reviewed QC and QA test results to determine that the geosynthetic materials met the project specifications. The QC laboratory and QA laboratory and field test results for the geosynthetic materials are provided in Appendix P. The specific geosynthetic testing is discussed in the following sections.

#### 4.4.2.1 Manufacturer's Certification Testing

WRSScompass provided GSE's QC documentation for the 60-mil HDPE geomembrane and geocomposite to the BC CQA Inspector (see Appendix P). The QC results satisfied the geomembrane and geocomposite requirements in the CQAP.

#### 4.4.2.2 Laboratory Geosynthetic Material QA Testing

Samples of the 60-mil HDPE geomembrane, geocomposite, and geotextile were shipped to Precision Geosynthetic Laboratories in Anaheim, CA by the BC CQA Inspector for QA testing. The BC CQA Inspector randomly picked two rolls of 60-mil HDPE geomembrane and geocomposite as the rolls were be unloaded and stored onsite. The samples were labeled and shipped to the laboratory following chain-of-custody protocols.

The QC results satisfied the geomembrane and geocomposite requirements in the CQAP. Copies of the laboratory results are included in Appendix P.

#### 4.4.2.3 Field Non-Destructive Seam QC Testing

Non-destructive testing was performed by GSI on 100-percent of the geomembrane seams using the air pressure or vacuum testing methods, under the visual observation of the BC CQA inspector. For the air pressure test, the air channel created by the hot-wedge welder was pressure tested to determine the integrity of the seam. The seams were pressurized to a test pressure of 30 psi (minimum) allowed to equilibrate, and held for five minutes. Less than three pounds psi decrease in the pressure at the end of the five minutes constituted a passing non-destructive test. Each fusion weld passed the field non-destructive seam test with the results of the field non-destructive seam tests provided in Appendix P.

For the vacuum test method, a vacuum box was placed over an extrusion weld/repair that had been wetted with a soapy solution. A vacuum of approximately three psi was applied to the seam (24-inch sections at a time) for a minimum of ten seconds. If no bubbles were visible on the seam during the test, that constituted a passing non-destructive test. This process was repeated for the entire length of extrusion-welded seam. No extrusion welded seams failed the vacuum test.

#### 4.4.2.4 Field Destructive QC Seam Testing

For the purpose of testing every seaming apparatus in use each day, GSI used an onsite portable tensiometer to conduct peel and shear tests on trial welds of geomembrane at the beginning of the seaming period for each day geomembrane seaming was performed. The tensiometer calibration certification and trial weld data are provided in Appendix Q and Appendix P, respectively.

BC's CQA inspector selected representative seam samples for destructive testing at a frequency of one per every 1000 linear feet per welding apparatus. Destructive samples were tested onsite by GSI using the onsite portable tensiometer, and subsequently shipped to Precision Geosynthetic Laboratories in Anaheim, CA for confirmatory laboratory testing after the samples passed the initial field destructive testing. Results of the field destructive seam tests are provided in Appendix P. The location of the destructive test samples is provided on the Project Record Drawings in Appendix D.

#### 4.4.2.5 Laboratory Destructive QA Seam Testing

Destructive samples were shipped to Precision Geosynthetic Laboratories in Anaheim, CA by the BC CQA Inspector for testing after the samples passed the initial field destructive testing (see Section 4.4.2.3). A portion of each of the destructive seam samples was also archived for subsequent testing (if needed).

In total, nine destructive test samples were collected from the geomembrane seams. Of the nine destructive samples collected, none of the samples failed field testing or laboratory testing. The laboratory destructive seam test results are provided in Appendix P.



## Section 5

# Site Restoration

Site restoration activities were performed from August 2, 2010 through August 12, 2010 and on October 15, 2010 including the following:

- Temporary vegetation of the closed former lagoon area and the Railroad Borrow Area
- Construction of the perimeter fence and gate
- Permanent vegetation of the closed former lagoon area and the Railroad Borrow Area

The materials used, construction/installation methods, and inspections for each of the site restoration activities are discussed in the following sections.

### 5.1 Materials

The materials and components used in each of the site restoration activities included the following:

- Vegetation
  - Agricultural lime
  - Japanese millet grass seed (temporary vegetation)
  - Kentucky-31 tall fescue (permanent vegetation)
  - Pensacola-Bahiagrass (permanent vegetation)
  - Bermudagrass - unhulled (permanent vegetation)
  - 13-13-13 blended fertilizer (permanent vegetation)
  - Wheat straw and Bermuda grass hay
  - Erosion control matting
- Perimeter Fence and Gate
  - 6-foot chain-link fence fabric
  - Aluminized steel fence posts with caps
  - Aluminized steel top rails
  - 6-foot double-wide swing gate (12-foot opening)
  - Bottom tension wire
  - Double-strand barbed wire
  - Class C concrete
  - Metal warning signs
  - Miscellaneous bolts, washers, nuts, anchors, etc.

The product information and data for the Japanese millet, Kentucky-31 tall fescue, Pensacola-Bahiagrass, Bermudagrass, 13-13-13 blended fertilizer, and agricultural lime is provided in Appendix R.

## 5.2 Construction/Installation Methods

WRScompass and Hi Grade Farm Supply & Gin of Winona, MS (subcontracted by WRScompass) performed the temporary vegetation activities and WRScompass performed the permanent vegetation activities. The Oxford Fence Company of Oxford, MS performed the perimeter fence and gate installation. Equipment used during the performance of the site restoration activities included the following:

- Vegetation
  - Lime spreader truck
  - John Deere 650J dozer
  - John Deere farm tractor
  - John Deere rubber-tire tractor (16 horse power)
  - Yanmar tractor (18 horse power)
  - Harrow and disc attachments
  - Hopper-type seeder
  - John Deere seed drill
  - Fertilizer hopper
  - Gasoline powered straw blower mounted on a trailer
  - Ford F-250 pickup truck
  - Various hand tools
- Perimeter Fence and Gate
  - Post hole auger
  - Various hand tools

### 5.2.1 Vegetation

Vegetation of the site was performed in two phase: Phase One was temporary seeding with a temporary seed mix conducive to the harsh climate conditions (extreme temperatures, humidity, heat index, and lack of moisture in the form of precipitation), and Phase Two was the permanent seeding with the permanent seed mix performed during one of the optimum seeding seasons for Mississippi. Use of the temporary seed mix was discussed with the National Resources Conservation Service (NRCS) Grenada Field Office to obtain the proper species and amount of seed to use and any additives (lime, fertilizer, etc.) that could enhance the temporary seed mix to germinate in the harsh climate conditions. The permanent seeding was performed on October 15, 2010. The following methods were used to perform the vegetation:

- Temporary Seeding
  - Finish grading of the vegetative cover soil was performed.
  - Lime spreader truck applied six tons of agricultural lime to the surface of the closed former lagoon area and the Railroad Borrow Area.
  - A harrow and disc attachment was pulled over the soil surface to blend the lime into the surface.
  - A piece of railroad rail and chain-link fence fabric was pulled over the surface to gather and collect roots and other small debris.

- A hopper-type seeder was used to distribute the grass seed evenly over the area of the closed former lagoon and the Railroad Borrow Area; 300 pounds of Japanese Millet grass seed was planted.
- Erosion control matting was placed along the inside edge of the perimeter of the former lagoon area.
- Wheat straw and Bermuda grass hay were applied on top of the seeded areas.
- Permanent Seeding
  - A hopper-type spreader was used to distribute the fertilizer evenly over the area of the closed former lagoon and the Railroad Borrow Area; 1,200 pounds of fertilizer was spread.
  - The permanent seed mix consisting of Kentucky-31 tall fescue, Pensacola-Bahiagrass, and Bermudagrass was placed in the seed drill and drilled into the subsurface across the area of the closed former lagoon and the Railroad Borrow Area; 80 pounds of Kentucky-31 tall fescue, 120 pounds of Pensacola-Bahiagrass, and 20 pounds of Bermudagrass was planted.

### 5.2.2 Perimeter Fence and Gate

The following methods were used to install the perimeter fence and gate:

- The fence alignment was laid out including the gate location and position of fence posts.
- Post holes were dug using the post hole auger.
- Fence posts were placed in the holes filled with concrete and “squared”.
- Toprail was installed with fence fabric and bottom tension wire.
- Barbed wire supports and double-strand barbed wire was installed.
- Double-wide gate and locking mechanism were installed.
- Warning signs were bolted on the fence fabric.

### 5.3 Inspection

Throughout the performance of the vegetation and perimeter fence installation, the BC CQA Inspector was in contact with the WRScompass field supervisor to discuss the daily activities and progress. On August 12, 2010, a final site walkthrough inspection was performed by a BC representative and representatives of WRScompass. The condition of the vegetation, perimeter fence and gate, warning signs, erosion control, and overall cleanliness of the site were observed and documented. A Daily Field Log and photographs taken during the final site walkthrough are provided in Appendix A and Appendix B.

The vegetation, perimeter fence and gate, warning signs, erosion control, and overall cleanliness of the site was found to be acceptable and in good condition.

On October 15, 2010, a BC representative was present at the site to observe and take photographs of WRScompass performing the permanent seeding operations. The seed tags and fertilizer information was collected and is provided in Appendix R. The permanent seeding operations were found to be acceptable and the site was left in good condition.

Not present?

Decon procedures?  
Off-site disp. of haz. matls.?  
Future monitoring?

Cert that it -  
attained project goals

No site figures, as-built drawings.

Desc. of collection system  
O+M plan - figure.  
- post closure - working properly?  
care (Resp. Log)

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## Section 6

# Limitations

This document was prepared solely for ArvinMeritor, Inc. in accordance with professional standards at the time the services were performed and in accordance with the contract between ArvinMeritor, Inc. and Brown and Caldwell dated February 3, 2010. This document is governed by the specific scope of work authorized by ArvinMeritor, Inc.; it is not intended to be relied upon by any other party except for regulatory authorities contemplated by the scope of work. We have relied on information or instructions provided by ArvinMeritor, Inc. and other parties and, unless otherwise expressly indicated, have made no independent investigation as to the validity, completeness, or accuracy of such information.

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## Appendix A: Daily Field Logs

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Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: April 19, 2010

Construction Day No.: 1

Weather: Overcast, cloudy; 59° - 70°

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                  |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation             |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Silt fence installation and site set up |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Jeff Habegger, Mike Foreman, Tyrone Terry

Williams Equipment &amp; Supply - Oxford, MS

Don Williams - Grenada Stamping and Assembly

Mobile Mini, Inc. - Memphis, TN

Port-a-John - Memphis, TN

RSC Equipment - Grenada, MS

## SUMMARY OF WORK:

7:30 - RAI onsite, meet w/Don Williams of Grenada Stamping and Assembly; RAI and Don Williams tour site

- RAI, Don Williams, Jeff Habegger discuss project, location of office trailer, fence removal, and tree clearing. Don requested ballfield fence be move inward w/temporary fence posts to keep kid out of the sludge lagoon area

- Site safety meeting: discussed scope of project, initial clearing and erosion control structures, watch for snakes, fire ants &amp; ticks

- RAI and Jeff Habegger discuss fence removal, tree clearing, silt fence and barrier fence location - around GW monitoring wells and outside silt fence

- RAI and Don Williams discuss location of plant discharge point for the lagoon water; drop inlet structure at NW corner of plant building

- RAI and Jeff Habegger discuss location of silt fence at the SW corner and along the south side of the lagoon

- RAI and Jeff Habegger discuss location of lagoon water discharge at plant drop inlet; meet w/Don Williams to obtain property boundaries and discuss route for pipeline from the lagoon side of Highway 332 to the plant discharge point - through concrete box culvert, through gate at NW corner of former EQ Basin, along swale of former EQ Basin to man gate at SE corner of former EQ Basin, through man gate to drop inlet; also discussed location for wood chips

- RSC Equipment delivered Ditch Witch 1230; Williams Equipment &amp; Supply delivered silt fence, posts, wire mesh, barrier fencing, etc.

- RAI take series of pre-construction photographs

- WRScopass initiate trenching for silt fence; approximately 185 linear of trench

- Mobile Mini delivered office trailer

17:30 - RAI and WRScopass off-site

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

4/19/10

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** April 20, 2010

**Construction Day No.:** 2

**Weather:** Clear, sunny; 50°-74°

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                  |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation             |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Silt fence installation and site set up |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScopass: Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez, Mike Slovensky

Don Williams - Grenada Stamping and Assembly

Michael Lindsey - Equipment Services - Jackson, MS

RSC Equipment - Grenada, MS

Williams Equipment & Supply - Oxford, MS

**SUMMARY OF WORK:**

6:45 - RAI onsite

- Site safety meeting: discussed site safety plan, scope work for the day, heat stress, rally point for emergencies, and watch for snakes, fire ants and ticks

- WRScopass initiate silt fence trenching and installation

- RSC Equipment delivered Bobcat T250 skid steer

- RAI received SWP3 draft submittal

- WRScopass putting up barrier fencing around GW monitoring wells

- RAI called Willis Engineering regarding status of geotechnical tests; tests finished and summary report to be e-mailed

- Williams Equipment & Supply delivered silt fence, metal posts, and barrier fencing

- WRScopass continues silt fence trenching and installation; approximately 684 linear feet of trenching; approximately 869 linear feet of silt fence installed

- WRScopass staking location of ballfield fence relocation

- Mike Slovensky of WRScopass onsite with trailer of office furniture/equipment

- WRScopass start backfilling silt fence trench

17:28 - RAI and WRScopass off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: April 21, 2010

Construction Day No.: 3

Weather: Clear, sunny; 49°-77°

## ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation  |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Silt fence installation, barrier fence installation, fence removal |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan RamirezDon Williams - Grenada Stamping and AssemblyLarry Minga - Minga ElectricJim Peebles - Brown and CaldwellMeredith Anderson - U.S. EPA

## SUMMARY OF WORK:

6:37 - RAI onsite

- Site safety meeting: discussed hand safety - wear gloves, watch pinch points, and watch hands around equipment. Safety First - Do not take risks; nothing doing on site is worth getting hurt, and watch for snakes, fire ants, and ticks
- WRSccompass continue installing wire mesh reinforcement for silt fence, backfilling silt fence trench, and installing barrier fencing
- Conduct Pre-Construction Meeting; Attendees: Rick Isaac, Mike Slovensky, Jeff Habegger, and Don Williams
- Walk new ballfield fence alignment w/Don Williams; Don approved location
- Jeff Habegger provided Mike Slovensky with site tour; RAI accompanied
- Meredith Anderson (U.S. EPA) and Jim Peebles (Brown and Caldwell) onsite with Don Williams; reviewed and signed site specific HASP
- Site tour for Meredith Anderson; explained scope of work and provided answers to questions
- Larry Minga of Minga Electric onsite to discuss electric service for office trailer, lagoon pump junction box, and check power disconnect to ballfield light poles
- WRSccompass continuing to install barrier fence; silt fence completed around laydown area, west end of lagoon, and along south side of the lagoon; approximately 869 linear feet
- RAI reviewed and stamped WRSccompass SWP3 submittal
- WRSccompass start fence line clearing to obtain fence fabric for ballfield fence relocation
- Barrier fence completed around laydown area, west end of lagoon, and along south side of the lagoon; approximately 869 linear feet
- 17:14 - RAI and WRSccompass off-site

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: April 22, 2010

Construction Day No.: 4

Weather: Partly cloudy, clearing, sunny; 57°-81°

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                    |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation               |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Fence removal, temporary fence relocation |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScopass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

RSC Equipment Rental - Grenada, MS

Steven McCormick - McCormick Equipment & Excavating, Grenada, MS

Cook Tree Service - Grenada, MS

ICE Industries, Inc. Plant Manager - Grenada, MS

**SUMMARY OF WORK:**

6:37 - RAI onsite

- Site safety meeting: discussed emergency numbers posted by first aid kit in office trailer, call 911 for all emergencies, two-way radios to be used for communication, Safety is No. 1, and watch for snakes, fire ants, and ticks

- WRScopass working on taking fence fabric down for use in ballfield fence relocation

- RSC Equipment Rental onsite to deliver chop saw and repair Bobcat skid steer

- RAI reviewed and stamped WRScopass ISS Work Plan submittal: "No Exceptions Taken"

- WRScopass working on disconnecting existing fence to move for ballfield fence relocation

- ICE Industries, Inc. Plant Manager onsite to check food plots back by the PRB wall

- RAI/Elena Goodhall telephone call - status of project and laboratory required to test Type I Portland cement and lime kiln dust

- Terry Heskett of Minga Electric onsite to check if power is still "live" to the lagoon pump junction box and the ballfield light pole to be removed: no "live" power to either source

- WRScopass continuing to erect relocated fence in ballfield outfield; begin to put up barrier fence on ballfield side of relocated fence

- WRScopass completed fence relocation including barrier fencing; approximately 223 linear feet of existing chain-link fence removed

- Steven McCormick of McCormick Equipment & Excavating onsite - looking at tree removal and clearing

- WRScopass off-site

18:00 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

*[Signature]*

4/22/10



Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: April 23, 2010

Construction Day No.: 5

Weather: Partly sunny, clearing, sunny, turning cloudy, overcast w/  
lightning, thunder, and rain; 60°-81°

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                    |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation               |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Silt fence and barrier fence installation |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSccompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Steve McCormick - McCormick Equipment & Excavating, Grenada, MS RSC Equipment Rental, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Terry Heskett & Cecil McCammon - Minga Electric, Grenada, MS

**SUMMARY OF WORK:**

6:45 - RAI onsite

- Site safety meeting: discussed emergency contacts and filled out paper work, reviewed site address and office trailer as the rally point for emergencies, and watch for severe weather conditions this afternoon

- WRSccompass working on installing silt fence along relocated ballfield fence, filling in holes where existing fence was removed, installing barrier fence to cutoff access to the existing clarifier, gathering old fence parts for off-site removal

- RAI call into weekly Columbus workload conference call

- WRSccompass completed barrier fence installation to isolate area from existing power source by existing clarifier, approximately 134 linear feet installed

- Steven McCormick and Dwight Stewart of McCormick Equipment & Excavating onsite - looking at tree removal and clearing

- RAI reviewed and stamped silt fence and wire fence submittal - "No Exceptions Taken"

- RAI received geosynthetics submittal from WRSccompass

- Terry Heskett and Cecil McCammon of Minga Electric onsite to install generator for power to the office trailer

- RSC Equipment Rental onsite to pickup trencher and chop saw

- RAI/Erik McPeck telephone conversation to discuss dimensions of RR berm required to be cleared for volume of cover soil required

- RAI called Kellen Corbin of Crowder Engineering and Surveying to obtain survey control points for the site

- WRSccompass completed silt fence including wire mesh reinforcement along relocated ballfield fence; approximately 221 linear feet installed

- WRSccompass checking for survey control points along top of lagoon berm

- WRSccompass cancels work due to lightning, thunder, and rain

16:14 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Date: April 26, 2010

Construction Day No.: 6

Project No: 138466

Location: Grenada, Mississippi

Weather: Clear to partly cloudy and sunny; breezy; 58° - 71°

BC Personnel: R. Isaac

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Mike Slovinsky, Mike Foreman, Tyrone Terry, Juan RamirezRicky Twiner and Walker Twiner - ShredCo, LLC, Inverness, MSSteve Thomas - Steve Thomas Construction, Grenada, MS

## SUMMARY OF WORK:

6:43 - RAI onsite

- Site safety meeting: discussed inclement/severe weather and use office trailer for rally point to wait out weather; stay away from overhead powerlines;
- WRScopass working on stapling wire mesh reinforcement to silt fence posts, filling in low areas near entrance gate, clearing smaller diameter trees along existing fence line and removing trees, chip smaller brush and trees
- RAI perform erosion/sediment inspection; silt fence in good condition; couple low areas to the west and SW with ponded water - check to see if additional soil needed in trench
- RAI filled out erosion/sediment inspection and Certification Form
- RAI begins review of geosynthetics submittal
- Ricky Twiner of ShredCo onsite w/Cat 287B Bobcat skid steer w/mulcher attachment to begin clearing brush and small trees outside of the lagoon perimeter fence
- RAI travels to Willis Engineering to pickup geotechnical test results for the clay material soil samples
- WRScopass continues to clear fence line, chip, and remove lagoon perimeter fence
- ShredCo completes clearing brush and small trees outside of the lagoon perimeter fence; begins to clear brush and small trees inside lagoon perimeter fence
- Walker Twiner of ShredCo onsite w/Cat 287B Bobcat attachments
- Steve Thomas of Steve Thomas Construction, Grenada, MS onsite to look at tree clearing
- WRScopass continuing to remove lagoon perimeter fence; ShredCo continuing to clear brush and small trees from the lagoon berm
- WRScopass shot elevation of water level in Sludge Lagoon; elevation - 179.81' on 04-26-10 is 1.41 feet higher than elevation on design drawings
- WRScopass and ShredCo shutdown for the day

18:45 - RAI off site

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Date: April 27, 2010

Construction Day No.: 7

Project No: 138466

Location: Grenada, Mississippi

Weather: Clear, sunny, cool; breezy; 51° - 70°

BC Personnel: R. Isaac

E. McPeck

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovinsky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Don Williams - ICE Industries, Inc. Grenada, MS

Ricky Twiner and Walker Twiner - ShredCo, Inverness, MS

Brady White - Resourceful Environmental Services, Inc., Ripley, MS

Mike Lindsey - H&amp;E Equipment Services, Jackson, MS

Chris Dungan - Scott Petroleum, Grenada, MS

Dee Wages - NES Rentals, Tupelo, MS

Doug Davis - Scott Petroleum, Grenada, MS

RES, Ripley, MS

## SUMMARY OF WORK:

6:40 - RAI onsite

- Site safety meeting, discussed ticks, fire ants, and bees; check allergic reactions to stings; work crew - none; clearing operations has stirred up wild life so keep watch
- WRSScompass working on removing perimeter lagoon fence and pull fence posts, cutting down trees along existing fence line
- RAI measures perimeter lagoon fence removal - approximately 650 linear feet of fence removed on 04-26-10
- RAI taking series of photographs showing clearing from 04-26-10: brush and tree removal
- Brady White of Resourceful Environmental Services, Inc. Ripley, MS onsite to discuss rolloff box services
- Scott Petroleum of Grenada, MS onsite to set up fueling station; 1,000-gallon diesel fuel tank w/secondary containment
- Mike Lindsey of H&E Equipment Services, Jackson, MS onsite to discuss equipment rental
- Ricky Twiner of ShredCo onsite w/Cat 287B Bobcat skid steer w/mulcher attachment to begin clearing brush and small trees outside of the lagoon perimeter fence
- ShredCo, LLC onsite; begin brush and small tree clearing
- Dee Wages of NES Rentals, Tupelo, MS onsite to discuss equipment rental
- Scott Petroleum onsite to deliver diesel fuel
- Erik McPeck of Brown and Caldwell, Columbus, OH onsite
- WRSScompass breaks for lunch
- RAI and EM offsite
- RAI and EM onsite
- RES onsite to deliver 20 yd rolloff box
- WRSScompass continuing to remove lagoon perimeter fence and load fence materials in rolloff box; ShredCo continuing to clear brush and small trees
- ShredCo mulcher breakdown; ShredCo offsite
- WRSScompass completed lagoon perimeter fence removal, cutting down trees around lagoon perimeter, and loading fence posts, fabric, and miscellaneous pieces in rolloff box
- WRSScompass shutdown work activities for the day

17:25 - RAI and EM off-site

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

**Project:** Sludge Lagoon Closure

**Date:** April 28, 2010

**Construction Day No.:** 8

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny; breezy; 49 - 80°

**BC Personnel:** E. McPeck

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation            |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Demo existing pipe and light pole |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Don Williams - ICE Industries, Inc. Grenada, MS

Dwight Stewart - S&L Construction

#### SUMMARY OF WORK:

06:45 E. McPeck onsite

- Site safety meeting: discussed snakes and buddy system in remote site areas

- WRScopass working on removing perimeter lagoon trees

- S&L Onsite with Excavator w/ control thumb on bucket.

- S&L Removing Trees from interior of lagoon containment.

- S&L Removed light pole

- WRS Compass and S&L excavated and removed 2" PVC line from clarifier pump house to lagoon.

- Don Williams onsite to point out existing underground pipe locations that will be removed as part of demo work onsite

- There is a 2" line (removed by compass today, remaining pipe was capped in place.

- There is a 4" bypass line that enters the lagoon where the 2" line did and goes to the clarifier pump house (Not yet removed)

- There is a 3" Recirculation line from the lagoon to the pump house that fed the clarifier (Not yet located)

- Trench for locating 2" pipe was backfilled at end of work day.

- All Trees located outside the lagoon have been Removed, Trees within the impoundment have been Removed from the edges.

- The only remaining trees are the 2 to 5 inch trees location in lagoon are still under water.

- ShredCo mulcher should be onsite tomorrow

- WRScopass completed lagoon perimeter fence removal, cutting down trees around lagoon perimeter, and loading fence posts, fabric, and miscellaneous pieces in rolloff box

- WRScopass shutdown work activities for the day

17:30 - EM off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

*[Signature]*

4/28/10

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: E. McPeck

Date: April 29, 2010

Construction Day No.: 9

Weather: Clear, sunny; 55° - 84°

**ITEMS WORKD ON:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation           |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation      |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Demo existing pipe, cap in place |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScopass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Don Williams - ICE Industries, Inc. Grenada, MS

Johnny Boatman - Boatman's Tree Service

Ricky Twiner and Walker Twiner - ShredCo, Inverness, MS

Dwight Stewart - S&L Construction

**SUMMARY OF WORK:**

06:45 E. McPeck onsite

- Site safety meeting: Chain of command during site activities, Excavation safety

- WRScopass working on removing brush and small trees from rail road spur borrow area. Marking wells with orange fence

- S&L Onsite with Excavator w/ control thumb on bucket

- WRS Compass and S&L excavated and removed 4" PVC line from clarifier pump house to lagoon (By-pass line)

- Removed 3" PVC line from the pump house that fed the clarifier (Recirculation line). 1" conduit line approximately 1' bgs along 3" line trench

- Don Williams onsite with plant electricians to verify wiring in conduit did not have power to it prior to removal

WRS capped all PVC pipe remaining in the ground with hydraulic cement and PCV endcaps that were glued on with PVC cement.

- ShredCo mulcher onsite at 12:30 to begin clearing on rail road spur

- S&L removed all trees inside sludge containment. all root balls were left inside containment area for future placement below solidified sludge

- WRS Compass removed approximately 532' of fencing and posts, 32' of fencing and cleared 540' of the top of the RR spur

- ShredCo continues to mulch up vegetation that is located around the lagoon

- Boatman's Tree service onsite to walk the railroad berm to submit a proposal to Compass.

- WRScopass completed removal of remaining trees around the interior of the containment area. The lagoon area is not clear of trees.

- WRScopass shutdown work activities for the day. ShredCo will continue to mulch until dark.

17:30 - EM off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date



Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: E. McPeck

Date: April 30, 2010

Construction Day No.: 10

Weather: Overcast, Windy; 55° - 84°

## ITEMS WORKD ON:

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation           |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation      |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Demo existing pipe, cap in place |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan RamirezDon Williams - ICE Industries, Inc. Grenada, MSJohnny Boatman - Boatman's Tree ServiceRicky Twiner and Walker Twiner - ShredCo, Inverness, MSBobby Burton - RES HaulingDwight Stewart - S&L ConstructionJimmy Baughman and Butch McNeed - Menga Electric

## SUMMARY OF WORK:

06:45 E. McPeck onsite

- Site safety meeting: Chain of comment during site activities, Excavation safety

- WRScompass working on removing brush and small trees from rail road spur borrow area.

- ShredCo mulcher onsite at 10:30 to continue clearing on rail road spur

- S&amp;L continued to clean off trees inside sludge containment. Clean tree sections were removed from rootballs.

- Rootballs and any material removed from the lagoon area that had dark or odd-shaded soil was kept within the lagoon impoundment area.

- WRS Compass removed approxiamtely 35' of fencing and posts, cleared an additional 75' of shrubs and trees on the top of the RR spur

- WRS Compass continued to remove trees and shrubs from side slopes of railroad spur

- ShredCo continues to mulch up vegetation that was being taken down and set on the top of the berm

- Boatman's Tree service onsite to walk the railroad berm to submit a proposal to Compass.

- WRScompass completed removal of remaining trees around the interior of the containment area. The lagoon area is not clear of trees.

- Weekly progress meeting with project team. See Weekly Project Meeting Notes.

- WRScompass shutdown work activities for the day, ShredCo will continue to mulch until dark.

16:30 - EM off-site

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

4/30/10



Project: Sludge Lagoon Closure

Date: May 3, 2010

Construction Day No.: 11

Project No: 138466

Location: Grenada, Mississippi

Weather: Clear skies, sunny; 55° - 84°

BC Personnel: E. McPeck

**ITEMS WORKD ON:**

- |  |   |
|--|---|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation               |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation          |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                      |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Cleaning and inventory tool trailers |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Dwight Stewart - S&L Construction

Frank Caldwell -Caldwell Tree Service

**SUMMARY OF WORK:**

06:45 E. McPeck onsite

- Weekend rain totalling 3" (1" on Saturday, 2" on Sunday) Site is muddy with some standing water

- Site safety meeting: Slip, Trip, Fall. Watch muddy/wet slopes

- EM performed inspection of stormwater controls with no deficiencies noted.

- WRS Compass clearing medium size trees and some shrubs on the railroad spur.

- WRS Compass measured elevation of surface water in lagoon at 180.07 Feet.

- WRScompass shutdown work activities for the day.

16:30 - EM off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

# Brown AND Caldwell

## DAILY FIELD LOG

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** E. McPeck

**Date:** May 4, 2010

**Construction Day No.:** 12

**Weather:** Clear skies, sunny; 55° - 90°

### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Clearing mulch material     |

### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Dwight Stewart - S&L Construction

Rick Twinnerm Mike Garvon, Denny Brepert - Shred-Co

### SUMMARY OF WORK:

06:45 E. McPeck onsite

- Site safety meeting: All hydraulic equipment needs to be down when not in operation or if the operator leaves machine.

- WRS Compass clearing medium size trees and some shrubs on the railroad spur.

- S&L making a 8' x 8' bench on the Northwest corner of the lagoon area that will be used to place the bag filter unit during dewatering activities.

- S&L using John Deere 650J Dozer to clear mulched material on lagoon berm area in preparation for soil removal

- ShredCo onsite to mulch tree limbs downed by WRS on barrow area and to ground down tree roots around the lagoon area.

- WRS Compass received (x2) 500-FT rolls of 2" HDPE, as well as (x10) 20' lengths of 2" HDPE pipe, delivered to the site by ISCO.

- WRScompass shutdown work activities for the day at 15:30, ShredCo. Continues to grind stumps located around the perimeter of the lagoon.

15:30 - EM off-site

### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

  
CQA Monitor Signature

5/4/10  
Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

E. McPeck

Date: May 5, 2010

Construction Day No.: 13

Weather: Clear skies, sunny; 55° - 87°

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Surveying                   |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Jake Mattox, Chris Turner - EMC Surveying and Mapping, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

Billy Holmes - Baker Corp., Little Rock, AR

RSC Equipment Rental, Grenada, MS

#### SUMMARY OF WORK:

06:45 - E. McPeck and R. Isaac onsite

- Site safety meeting: Heat Stress awareness and awareness while performing demolition work

- ShredCo completed their work yesterday

- WRS Compass clearing medium size trees and some shrubs on the railroad spur.

- EMC Mapping and Surveying onsite to establish base points and shoot existing grid.

- E. McPeck offsite

- Baker Corp onsite to deliver the dual-cell bag filter, reducers, and hose

- Don Williams onsite to discuss w/WRSccompass area to dispose of wood chips

- RSC Equipment Rental onsite to deliver replacement skid steer

- WRSccompass unloading and placing dual-cell bag filter

- WRSccompass installing pumps, flow meter, and piping associated with the lagoon dewatering and dual-cell bag filter

- WRSccompass completed installation of lagoon dewatering system

- WRSccompass checking condition of 2-inch dia. HDPE pipe for lagoon water discharge

17:15 - RAI offsite

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Date: May 6, 2010

Construction Day No.: 14

Project No: 138466

Location: Grenada, Mississippi

Weather: Clear, sunny, hot; 63° - 89°

BC Personnel: R. Isaac

#### ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation  |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Topsoil stripping and lagoon water discharge pipeline installation |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Dwight Stewart - S&L Construction, Duck Hill, MS

Don Williams - ICE Industries, Inc. Grenada, MS

#### SUMMARY OF WORK:

6:45 - RAI onsite; WRSccompass onsite; S&L Construction onsite

- Site safety meeting: discussed snakes; 9 different species of poisonous snakes in MS; wear boots, heavy pants, and gloves; watch where snakes can hide and warm areas; if bitten - call 911, keep person warm and calm; stay away from grassy areas and do not sit on the ground

- WRSccompass working on installing 2" discharge pipeline to the discharge point; S&L Construction stripping approx. 4" of topsoil from lagoon berm top and outside sideslopes

- J. Habegger requests written authorization to discharge the lagoon water through the ICE Industries, Inc NPDES discharge point

- WRSccompass welding 2" diameter HDPE pipe; plate temperature between 45 and 500°

- RAI conversation w/Don Williams of ICE Industries, Inc. regarding the written authorization for WRSccompass to discharge the lagoon water through the plant NPDES discharge point; Don will put together a letter and give to RAI

- RAI conversation w/Erik McPeck regarding the water elevation in the lagoon; told Erik to use 180.07 ft shot by WRSccompass on 05/03/10; will adjust to elevation obtained by EMC Surveying on 05/05/10 to determine volume of water in the lagoon using Civil 3D Design

- WRSccompass installing pipeline road crossing perpendicular to the lagoon discharge system

- WRSccompass pulling 2" discharge pipeline through HWY 322 box culvert to former EQ Basin gate

- WRSccompass breaks for lunch

- RAI offsite

- RAI working on Change Order No. 1 response to WRSccompass; e-mail draft to ERG for review

- RAI onsite

- Topsoil stripping of the top of the berm and outside sideslopes completed

- Don Williams of ICE Industries, Inc. hand delivered lagoon discharge authorization letter

- S&L Construction onsite to remove John Deere 650J dozer

- WRSccompass initiates lagoon water discharge; checking for leaks at welds and flange connections

- WRSccompass collects sample of lagoon discharge water from the discharge point; RAI delivers to Don Williams for clarity and odor check and pH

- WRSccompass replacing hose clamp on bag filter discharge pipeline and general site cleanup

- WRSccompass shutdown work activities for the day

17:35 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*RUGQ*

CQA Monitor Signature

*5/6/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** May 7, 2010

**Construction Day No.:** 15

**Weather:** Clear, hot; 68° - 88°

**ITEMS WORKD ON:**

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation             |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation        |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                    |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Tree clearing along RR borrow area |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSccompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Don Williams - ICE Industries, Inc., Grenada, MS

**SUMMARY OF WORK:**

6:40 - RAI onsite; WRSccompass onsite

- Site safety meeting: discussed ticks, chiggers, insects - watch for; use repellent, if necessary; discharge water sampling - watch for pinch points and proper lifting procedures when moving the grate

- WRSccompass working on tree clearing along RR borrow area and water discharge from the lagoon

- Lagoon water discharge: flow meter - 24,000 gallons on 5/6/10

- RAI called Don Williams of ICE Industries, Inc. to inform that WRSccompass would be discharging lagoon water on 5/7/10; discharge water sample will be collected around 8:30 am

- RAI participates in Weekly Workload Conference Call

- WRSccompass/RAI collect discharge water sample; RAI delivers sample to Don Williams of ICE Industries, Inc.

- Don Williams of ICE Industries, Inc. - visual and odor check of discharge water sample; pH 7.5

- RAI walked discharge pipeline route to check for leaks at welds and flange connections

- RAI walked the RR borrow area to observe clearing activities

- RAI conducted Weekly Progress Meeting; attendees - Rick Isaac - Brown and Caldwell, Mike Slovensky and Jeff Habegger - WRSccompass

- WRSccompass breaks for lunch

- RAI offsite

- RAI onsite

- WRSccompass continuing to pump water from the lagoon and clearing trees at the RR borrow area

- RAI, M. Slovensky, and J. Habegger walk the RR borrow area to discuss tree clearing and mark large trees to be removed by subcontractor

- RAI provides WRSccompass w/revised ASTM Standards for Type I Portland cement and lime kiln dust (LKD)

- WRSccompass shutdown for the day; WRSccompass work force offsite

- RAI working on Weekly Progress Meeting minutes

- Water meter reading 48,500; 47,600 gallons pumped

17:00 - RAI off-site



**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*YMAQ*

CQA Monitor Signature

*5/7/10*

Date

**Project:** Sludge Lagoon Closure

**Date:** May 10, 2010

**Construction Day No.:** 16

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Overcast, rain - morning; clear, sunny, breezy - afternoon;  
55° - 78°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Butch McNutt and Jimmy Barham - Minga Electric, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

#### SUMMARY OF WORK:

6:45 - RAI onsite; M. Slovensky and J. Habegger of WRSScompass onsite; WRSScompass workforce onsite - 6:48

- Site safety meeting: discussed pinch points - hands and feet and rigging related to unloading and erecting equipment - reagent storage pig and baghouse; need to perform good traffic control when truck with pig arrives

- WRSScompass checking lagoon dewatering equipment; servicing pumps and checking filters

- Minga Electric onsite to service/repair portable generator for office trailer

- RAI called Don Williams of ICE Industries, Inc. to inform that WRSScompass will be discharging lagoon water on 5/10/10

- Approximately 84,500 gallons of lagoon water pumped on May 8, 2010 and May 9, 2010

- WRSScompass talked to Boatman Tree Service - Boatman will not be onsite today; rescheduled for Tuesday, May 11, 2010

- RAI reviewing lime kiln dust (LKD) and Type I Portland cement submittals from WRSScompass

- WRSScompass calls off work for the day due to rain and the reagent storage pig delivery rescheduled for Tuesday, May 11, 2010

- WRSScompass work force: M. Foreman, T. Terry, and Juan Ramirez offsite - 8:50

- RAI collected lagoon discharge water sample and delivered samples for 05/8/10, 05/09/10, and 05/10/10 to Don Williams of ICE Industries, Inc.

- RAI reviewing geosynthetics submittals from WRSScompass

- RAI offsite for lunch

- WRSScompass recalls workforce back to site - M. Foreman and J. Ramirez

- WRSScompass working on unclogging 2-inch electric pump

- WRSScompass fixed clogging issue with lagoon discharge water; workforce offsite - M. Foreman and J. Ramirez - 15:30

- RAI provided reviewed Type I Portland cement and lime kiln dust (LKD) submittals to WRSScompass stamped "No Exceptions Taken"

- RAI provided reviewed geosynthetics submittals to WRSScompass stamped "No Exceptions Taken"

- Minga Electric onsite to check portable generator for office trailer

- Water meter reading 145,100 gallons pumped total: 13,000 gallons pumped on 05-10-10

17:15 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

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*RUAQ*

CQA Monitor Signature

*5/10/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** May 11, 2010

**Construction Day No.:** 17

**Weather:** Mostly cloudy, breezy - morning; partly cloudy to sunny-afternoon; 68° - 87°

#### ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                                    |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Site cleanup/maintenance; unload and setup reagent storage pig |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Mike Foreman, Tyrone Terry, Juan Ramirez

Don Williams - ICE Industries, Inc., Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Zane Shawber - WRSScompass, Indianapolis, IN

#### SUMMARY OF WORK:

6:40 - RAI onsite; M. Slovensky and J. Habegger of WRSScompass onsite; WRSScompass workforce onsite - 6:50

- Site safety meeting: discussed buddy system at all times when working around the lagoon water; use life jacket and buoy around water; no one should try to walk on the sludge for any reason; will be hot today - keep hydrated by drinking plenty of water; use eye protection working around chipper

- WRSScompass checking lagoon dewatering equipment; servicing pumps and checking filters; general site cleanup

- Don Williams of ICE Industries, Inc. onsite - brought back discharge water sampling bottles; pH for 5/8/10, 5/9/10, and 5/10/10 was 7.6, 7.6, and 7.4, respectively

- RAI checked discharge water flow meter - 28,700 gallons pumped overnight and 173,800 gallons pumped total

- RAI performed weekly erosion and sediment control inspection - silt fence in good condition with no observed sediment outside of fence

- RAI participated in conference call related to the Lorain County II Landfill 2010 GCCS program

- RAI collected a lagoon discharge water sample and delivered to Don Williams of ICE Industries, Inc. for clarity, odor, and pH check

- WRSScompass talked to Boatman Tree Service - the chipper is brokedown so Boatman has rescheduled for Wednesday, May 12, 2010

- WRSScompass continuing to work on site cleanup/maintenance; building ramp on lagoon berm to off load reagent storage pig

- Armstead Townes of Townes Construction onsite to discuss clay material delivery; site walk to discuss clay dumping area and truck turnarounds

- RAI and M. Slovensky drive to clay material borrow source w/Armstead Townes

- WRSScompass breaks for lunch; RAI takes lunch

- RAI checks discharge system flow meter - 187,900 total gallons pumped

- RAI checks lagoon water discharge point and walks discharge pipeline route checking for leaks; water looks clear and no leaks

- RAI telephone conversation w/Don Broton of CTL Group to confirm Type I Portland cement, lime kiln dust (LKD), sludge moisture content, and UCS test costs and shipping method for solidified sludge cylinders; follow-up telephone conversation w/Janine Ostler to review subcontract for CTL Group and send subcontract to Don Broton

- WRSScompass reagent storage pig arrives onsite

- WRSScompass truck driver backing reagent storage pig into lagoon area

- WRSScompass workforce setting up reagent storage pig and leveling to unhook tractor

- WRSScompass truck driver offsite

- Don Williams of ICE Industries, Inc. returned lagoon discharge sample bottle; pH - 7.4 for 05/11/10

- WRSScompass stops work activities for the day

- RAI working on geosynthetics submittal clarification response memorandum

- RAI checks discharge system flow meter - 197,600 total gallons pumped; 23,800 gallons pumped during the day 05/11/10

17:10 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_



CQA Monitor Signature



Date

Project: Sludge Lagoon Closure

Date: May 12, 2010

Construction Day No.: 18

Project No: 138466

Location: Grenada, Mississippi

Weather: Mostly cloudy- clearing and sunny, breezy - morning;  
partly cloudy, warm, breezy - afternoon; 68° - 89°

BC Personnel: R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input type="checkbox"/> Protective/Vegetative Cover Installation  |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                                   |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Site cleanup/maintenance; setup and level reagent storage pig |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovinsky, Mike Foreman, Tyrone Terry, Juan Ramarez

RSC Equipment Rental, Grenada, MS

#### SUMMARY OF WORK:

6:40 - RAI onsite; M. Slovinsky of WRSScompass onsite; WRSScompass workforce onsite - 6:45

- Site safety meeting: discussed using life preserver if necessary around lagoon water; make sure to have two-way radios - important when spread out; tools need to be picked up and put away at the end of each day - put back where they came from

- WRSScompass checking lagoon dewatering equipment; servicing pumps and checking filters; leveling reagent storage pig

- RSC Equipment Rental onsite to switchout skid steers and deliver forklift - GEHL RS5-34

- WRSScompass erecting, moving, and placing baghouse by reagent storage pig; continuing to level reagent storage pig

- RAI checked discharge water flow meter - 18,100 gallons pumped overnight and 215,700 total gallons pumped

- RAI collected lagoon discharge water sample and delivers to Don Williams of ICE Industries, Inc. for clarity, odor, and pH check

- WRSScompass talked to Boatman Tree Service - the chipper is not repaired; Boatman has rescheduled for Monday, May 17, 2010

- WRSScompass performing maintenance on lagoon discharge system i.e. changing filters, fueling, etc.; RAI asked if pump clogged again - WRSScompass responded that bucket/pump on bottom; RAI told WRSScompass to not restart dewatering system; RAI walked to discharge point and did not observe sludge; RAI sent E. Goodhall an e-mail about the situation

- Don Williams of ICE Industries, Inc. calls RAI and says there is solids in the discharge water sample collected at 835; RAI goes to talk to Don

- RAI and Don Williams discuss the discharge water sample and plan of action moving forward

- WRSScompass workforce breaks for lunch

- RAI has WRSScompass turn pumps back on at 1130; pumps run approximately 30 minutes; RAI collects discharge water sample; WRSScompass shuts down pumps; RAI takes water sample to Don Williams for evaluation; water sample looks good -color, odor, clarity, pH - 7.8, and no solids

- RAI and Don Williams discuss plan of action for moving forward; RAI relays the plan of action to WRSScompass

- WRSScompass turns on lagoon dewatering system; WRSScompass monitoring dewatering system and collecting samples; working on clearing trees at the RR Borrow Area; reagent storage pig and baghouse setup completed

- RAI sends E. Goodhall e-mail outlining lagoon dewatering plan of action

- RAI offsite to pickup Fedex package at hotel

- RAI onsite; WRSScompass monitoring lagoon dewatering and clearing trees at RR Borrow Area

- WRSScompass repositioning pump in lagoon; RAI checks flow meter reading - 227,900 total gallons pumped



- WRScompass restarts lagoon dewatering pumps

- WRScompass workforce - M. Foreman and J. Ramirez complete work for the day and offsite; T. Terry staying to monitor the lagoon dewatering system

- RAI collects discharge water sample; no solids

- RAI checks discharge system flow meter - 230,700 total gallons pumped; 15,000 gallons pumped during the day 05/12/10

16:40 - RAI off-site; travel to Fedex Service Center

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:



CQA Monitor Signature



Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** May 13, 2010

**Construction Day No.:** 19

**Weather:** Mostly cloudy, breezy - morning;  
partly cloudy, hot - afternoon; 77° - 89°

**ITEMS WORKD ON:**

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                                 |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                            |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Constructing lagoon dewatering pump cage; site cleanup |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSScompass: Mike Slovensky, Mike Foreman, Tyrone Terry, Juan Ramarez

**SUMMARY OF WORK:**

6:45 - RAI onsite; M. Slovensky of WRSScompass onsite; WRSScompass workforce onsite - 6:50

- Site safety meeting: discussed use of company vehicles - all company vehicles are not to be used after 10:00 pm; if using company vehicle - no alcohol, drugs, or smoking; also no smoking allowed on the job site

- WRSScompass checking lagoon dewatering equipment; servicing pumps and checking filters

- RAI collects lagoon discharge water sample and delivers to Don Williams of ICE Industries, Inc.; water looks good, no solids, and pH - 7.3

- WRSScompass constructing discharge water pump cage to help prevent clogging

- RAI collects sample of lagoon discharge water to check solids - no solids after 30 minutes

- RAI reviewed WRSScompass Invoice 001

- RAI checks flow meter reading - 245,700 total gallons pumped

- WRSScompass completes lagoon dewatering pump cage

- WRSScompass breaks for lunch; Mike Foreman of WRSScompass transferring to another job in Florida

- RAI offsite for lunch; work on invoice review and responding to e-mails at hotel

- RAI onsite

- WRSScompass continuing to monitor lagoon dewatering system; working on site cleanup

- RAI collects sample of lagoon discharge water to check solids - no solids after 30 minutes

- RAI checks flow meter reading - 255,200 total gallons pumped

- WRSScompass shuts lagoon dewatering system down for the day; RAI checks flow meter reading - 259,100 total gallons pumped and 28,400 gallons pumped on 05/13/10

- WRSScompass performing maintenance/service on lagoon dewatering system and changing filters

- WRSScompass placing lagoon dewatering pump cage in lagoon; placing and securing pump inside cage

- WRSScompass completes work activities for the day

17:15 - RAI off-site; travel to FedEx Service Center

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

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CQA Monitor Signature



Date

**Project:** Sludge Lagoon Closure

**Date:** May 14, 2010

**Construction Day No.:** 20

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly sunny, humid - morning;  
partly cloudy, hot - afternoon; 70° - 89°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                               |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                          |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Unloading Type I Portland cement; moving brush piles |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovinsky, Tyrone Terry, Juan Ramirez

Ernest Jeffries and JC Warren - Wooten Transports, Inc., Memphis, TN

Don Williams - ICE Industries, Inc., Grenada, MS

#### SUMMARY OF WORK:

6:40 - RAI onsite; M. Slovinsky of WRSScompass onsite; WRSScompass workforce onsite - 6:55

- Site safety meeting: discussed housekeeping - a clean place is a safer place; generally doing good job with housekeeping overall

- WRSScompass working on setup for Type I Portland cement delivery; expecting two loads today; monitoring lagoon dewatering activities

- Wooten Transports, Inc., Memphis, TN onsite with load of Type I Portland cement

- Wooten Transports, Inc. unloading Type I Portland cement w/assistance of WRSScompass; blowing cement under plastic on top of plastic; 26.55 tons from Holcim, Inc. of Bloomsdale, MO; first load

- RAI collects lagoon discharge water sample and delivers to Don Williams of ICE Industries, Inc. for check of clarity, odor, and pH; pH - 7.4

- Wooten Transports, Inc. unloading Type I Portland cement w/assistance of WRSScompass; blowing cement under plastic on top of plastic; 26.31 tons from Holcim, Inc. of Bloomsdale, MO; second load

- RAI checks lagoon discharge flow meter; reading - 274,700 total gallons pumped

- WRSScompass covering Type I Portland cement with plastic; plastic secured with onsite soil material

- RAI collects lagoon discharge water sample to check for solids; no solids after 30 minutes

- WRSScompass breaks for lunch; RAI offsite for lunch; responding to e-mails at hotel

- RAI onsite

- WRSScompass continuing to monitor lagoon dewatering system; moving brush piles interior of lagoon to setup area for lime klin dust (LKD) storage

- RAI checks lagoon discharge flow meter; reading - 285,700 total gallons pumped

- RAI collects lagoon discharge water sample to check for solids; no solids after 30 minutes

- RAI conducts Weekly Progress Meeting; attendees: R. Isaac of BC and M. Slovinsky, J. Habegger, and T. Morrow of WRSScompass

- RAI conducts air monitoring w/MiniRAE 3000 around cement storage area and moved brush pile; reading 0.0

- WRSScompass loading brush piles w/skid steer into 5-yd end dump and taking to placement area

- RAI checks lagoon discharge flow meter; reading - 291,800 total gallons pumped

- RAI collects lagoon discharge water sample to check for solids; no solids after 30 minutes

- WRSScompass shoots lagoon water elevation - 178.33 feet; 0.07 feet lower than the design elevation of 178.40 feet

- WRSScompass shuts down work for the day; workforce offsite

- RAI checks lagoon discharge flow meter; reading - 295,100 total gallons pumped

- RAI checks lagoon discharge flow meter; reading - 296,400 total gallons pumped; 37,300 gallons pumped on 05/14/10

18:00 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

*[Handwritten Signature]*

CQA Monitor Signature

*5/14/16*

Date

Project: Sludge Lagoon Closure

Date: May 15, 2010

Construction Day No.: 21

Project No: 138466

Location: Grenada, Mississippi

Weather: Mostly sunny, hot, humid; 72° - 87°

BC Personnel: R. Isaac

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Moving brush piles          |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScompass: Mike Slovinsky, Tyrone Terry, Juan Ramirez

Steve McCormick - McCormick Equipment & Excavating, Grenada, MS

**SUMMARY OF WORK:**

6:55- RAI onsite; M. Slovinsky of WRScompass onsite; WRScompass workforce onsite - 6:55

- Site safety meeting; discussed heat stress; drink plenty of water; keep hydrated; watch your buddy

- WRScompass loading brush piles; monitoring lagoon dewatering activities

- RAI collects lagoon discharge water sample and delivers to Don Williams of ICE Industries, Inc. for check of clarity, odor, and pH; pH - 7.2

- Discussion w/Don Williams related to shipment of materials; Don said to have WRScompass send items addressed to Don and Don will get them to WRScompass

- RAI checks lagoon dewatering flow meter; reading - 301,000 total gallons pumped

- Steve McCormick onsite to drive 5 yd end dump truck to move brush piles

- Don Williams of ICE Industries, Inc. called to indicate that WRScompass scale was delivered; Don will bring over later

- RAI collects lagoon discharge water sample to check for solids; no solids after 30 minutes

- WRScompass continuing to load brush, work on solidification demonstration preparation, and monitor the lagoon water discharge system

- RAI collects lagoon discharge water sample to check for solids; no solids after 30 minutes

- RAI collects lagoon discharge water sample to check for solids; no solids after 30 minutes

- RAI checks flow meter reading - 310,900 total gallons pumped; 14,500 gallon pumped on 05/15/10

- WRScompass shuts down lagoon dewatering system

- WRScompass completes work activities for the day; workforce offsite

12:11 - RAI off-site

- RAI meets w/Don Williams of ICE Industries, Inc. - tell Don that the lagoon dewatering system is shutdown and RAI will not allow WRScompass to turn back on until approval received from Don

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

*[Signature]*

CQA Monitor Signature

5/15/10

Date



**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** May 17, 2010

**Construction Day No.:** 22

**Weather:** Mostly foggy, clearing to sunny, hot, humid; 61° - 84°

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation  |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation   |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Lime kiln dust (LKD) delivery setup; lime kiln dust (LKD) unloading |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

<u>WRScompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Juan Ramirez</u>	<u>Jeff Edwards - Ferguson-Williams, Huntsville, AL</u>
<u>Don Williams - ICE Industries, Inc., Grenada, MS</u>	<u>Ronnie Houston - Frontier Fence, Carrollton, MS</u>
<u>Billy Holmes - Baker Corporation, Little Rock, AR</u>	
<u>Hercial Colbard and Chris Whitfield - Evergreen Transport LLC, Evergreen, AL</u>	

#### SUMMARY OF WORK:

6:40- RAI onsite; M. Slovensky and Jeff Habegger of WRScompass onsite; WRScompass workforce onsite - 6:45

- Site safety meeting; discussed driving to work and watching locals: tend to drive without headlights on in the morning; different driving habits based on what part of country in; muddy site conditions - watch slip, trip, and fall

- Billy Holmes of Baker Corporation onsite - deliver hoses

- WRScompass working on setup for lime kiln dust (LKD) deliveries; plastic and berms; Boatman Tree Service scheduled to be onsite today to cut trees at the RR Borrow Area

- Billy Holmes of Baker Corporation offsite

- RAI performs weekly erosion and sediment control inspection; silt fence in place w/no observed sediment outside of silt fence or erosion areas; filled out inspection and certification form

- Boatman Tree Service cancels work for today - chipper not repaired

- RAI receives submittal from J. Habegger for lime kiln dust (LKD) from MINTEK Resources, Inc. in Beavercreek, Ohio

- WRScompass performing maintenance on lagoon dewatering system equipment; trimming tree limbs along access road to aid truck drivers vision when backing into the site

- WRScompass checking weight of Type I Portland cement; using 1 CF box; weight w/box - 86.8 lbs; weight w/o box - 74.0 lbs

- RAI telephone conversation w/Bruce Alleman related to reagent testing and review of the full-scale demonstration test

- RAI calibrate MiniRAE 3000; zero cal - 0.0; span cal - 99.1

- RAI checks area where WRScompass will collect sludge material to check weight; readings - 0.0

- WRScompass breaks for lunch; RAI offsite to hotel to check/respond to e-mail

- RAI onsite; WRScompass collecting sludge material to check weight

- Evergreen Transport LLC of Evergreen, AL onsite; first lime kiln dust (LKD) delivery; Hercial Colbard - driver; 26.33 tons of lime kiln dust (LKD)

- RAI checks area where sludge material collected; readings - 0.0

- WRScompass preparing area for unloading lime kiln dust (LKD)

- WRScompass assisting Evergreen Transport with lime kiln dust (LKD) unloading

- Hose clogged; disconnect hoses to clear; restart unloading

- Evergreen Transport LLC of Evergreen, AL onsite; second lime kiln dust (LKD) delivery; Chris Whitfield- driver; 26.6 tons of lime kiln dust (LKD)

- Jeff Edwards of Feguson-Williams, LLC of Huntsville, AL onsite

- Second load of lime kiln dust (LKD) being unloaded into reagent storage pig

- Evergreen Transport, LLC problem with valve on blower equipment

- RAI has WRScompass shutdown LKD unloading under plastic - too much dust; WRScompass has Evergreen Transport unload remaining LKD into reagent storage pig

- Ronnie Houston onsite; talk to J. Habegger about fencing

- Results of Type I Portland cement and sludge material weights based on 1 cubic-foot: 74.0 lbs for Type I Portland cement and 57.6 lbs and 69.7 lbs for sludge material

- WRScompass shutdown work activities for the day

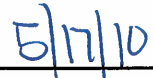
18:45 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_



CQA Monitor Signature



Date

**Project:** Sludge Lagoon Closure

**Date:** May 18, 2010

**Construction Day No.:** 23

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Partly sunny to cloudy, breezy; 64° - 82°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation  |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Reagent storage pig baghouse maintenance; build reagent offloading cage; unload lime kiln dust (LKD) |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Juan Ramirez, and Felix Moran

Freddie Booker - Williams Equipment & Supply, Oxford, MS

Jason Beavers - True Value Hardware, Grenada, MS

Jermaine Tate and Hercial Colbard - Evergreen Transport LLC, Evergreen, AL

#### SUMMARY OF WORK:

6:40- RAI onsite; M. Slovensky and Jeff Habegger of WRSccompass onsite; WRSccompass workforce onsite - 6:50

- Site safety meeting: discussed dust and wind issues; need to wear the masks when unloading reagent materials; need to pay close attention to direction of wind to minimize offsite dust - shutdown unloading operation, if necessary

- WRSccompass begins work activities for the day; working on general site housekeeping; maintenance on reagent storage pig baghouse; constructing reagent offloading cage

- RAI telephone conversation w/ERG regarding issues of addressing water in the lagoon following completion of the initial lagoon dewatering activities

- WRSccompass continuing to perform maintenance of reagent storage pig baghouse

- Williams Equipment & Supply onsite - delivery of 8-oz geotextile for reagent offloading cage

- True Value Hardware onsite - delivery of lumber for reagent offloading cage

- WRSccompass begins constructing reagent offloading cage

- WRSccompass breaks for lunch; RAI offsite to hotel to check e-mails and download files

- RAI onsite; WRSccompass continuing to construct the reagent offloading cage

- Felix Moran of WRSccompass onsite

- RAI telephone conversation w/Don Williams of ICE Industries, Inc.; Don said okay to resume pumping lagoon water; RAI will collect sample of discharge water to take to Don for check for clarity, odor, and pH; RAI to collect discharge water samples throughout the day to check for solids

- Evergreen Transport LLC of Evergreen, AL onsite; third lime kiln dust (LKD) delivery; Jermaine Tate - driver

- Evergreen Transport unloading lime kiln dust (LKD) into reagent storage pig

- WRSccompass continuing to construct the reagent offloading cage

- Evergreen Transport completes unloading lime kiln dust (LKD) into reagent storage pig; 25.85 tons of lime kiln dust (LKD)

- Evergreen Transport offsite

- WRSccompass starts lagoon dewatering system pumps

- Evergreen Transport LLC of Evergreen, AL onsite; fourth lime kiln dust (LKD) delivery; Hercial Colbard - driver

- Evergreen Transport unloading lime kiln dust (LKD) into reagent storage pig

- RAI collects sample of lagoon discharge water to check for solids; no solids after 30 minutes

- Evergreen Transport completes unloading lime kiln dust (LKD) into reagent storage pig; 25.92 tons of lime kiln dust (LKD)

- RAI checks lagoon dewatering flow meter; reading 316,000 gallons pumped through 1844 on 05/18/10

- Evergreen Transport offsite

- WRScompass shutdown work activities for the day

19:05 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

*[Handwritten Signature]*

CQA Monitor Signature

*5/18/10*

Date

**Project:** Sludge Lagoon Closure

**Date:** May 19, 2010

**Construction Day No.:** 24

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Partly sunny, breezy; 58° - 82°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input checked="" type="checkbox"/> Dewatering               | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation  |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Excavator check and maintenance; complete reagent offloading cage; unload lime kiln dust (LKD) |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Felix Moran, Tyrone Terry, Juan Ramirez

Gennie Cummings - R&L Carriers

Jake Mattox and Chris Turner - EMC Surveying & Mapping, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

Kerry Aldridge and Leonard Bailey - Evergreen Transport LLC, Evergreen, AL

#### SUMMARY OF WORK:

6:40- RAI onsite; Jeff Habegger and Felix Moran of WRSScompass onsite; Mike Slovensky of WRSScompass and workforce onsite - 6:47

- Site safety meeting: discussed machine checklist and maintenance; check fire extinguisher in machine; track machine operating hours

- WRSScompass begins work activities for the day; lagoon dewatering; continue constructing reagent offloading cage; unload lime kiln dust (LKD); maintenance around reagent storage pig; setup for full-scale solidification demonstration

- RAI collects sample of lagoon discharge water and delivers to Don Williams for check of clarity, odor, and pH

- RAI telephone conversation w/JPP related to the site visit by Meredith Anderson of the U.S. EPA to observe the solidification process; need to schedule for Wednesday/Thursday May 26/27, 2010 or Thursday/Friday, June 3/4, 2010

- RAI telephone conversation w/Mark Clark of KEMRON Environmental Services to obtain the source and percent of free lime for the lime kiln dust (LKD) used in the treatability study

- WRSScompass checking weight of 1 cubic foot of lime kiln dust (LKD); 62 lbs loose and 66 lbs compacted

- WRSScompass continuing to construct the reagent offloading cage and pumping lagoon water

- WRSScompass measuring and laying out preliminary solidification cells at the lagoon

- RAI checks lagoon dewatering flow meter; reading 330,500 gallons pumped

- RAI collects sample of lagoon discharge water to check for solids; no solids after 30 minutes

- WRSScompass breaks for lunch; RAI offsite

- RAI onsite; WRSScompass continuing to construct the reagent offloading cage and pumping lagoon water

- RAI checks lagoon dewatering flow meter; reading 335,300 gallons pumped

- RAI collects sample of lagoon discharge water to check for solids; no solids after 30 minutes

- RAI collects sample of lagoon discharge water to check for solids; no solids after 30 minutes

- EMC Surveying & Mapping onsite; shooting top of sludge material

- Don Williams of ICE Industries, Inc. onsite; returns lagoon discharge sample bottles; pH - 7.3 for 05-19-10

- Don Williams offsite

- EMC Surveying & Mapping offsite

- RAI collects sample of lagoon discharge water to check for solids; no solids after 30 minutes

- RAI checks lagoon dewatering flow meter; reading 343,700 gallons pumped

- WRScompass moving reagent offloading cage into place in the lagoon

- RAI collects sample of lagoon discharge water to check for solids; no solids after 30 minutes

- WRScompass shuts down lagoon dewatering system pumps; 347,000 total gallons pumped; 25,900 gallons pumped on 05/19/10

- Evergreen Transport LLC, Evergreen, AL onsite; lime kiln dust (LKD) delivery; fifth and sixth loads; Kerry Aldridge and Leonard Bailey

- Evergreen Transport unloading lime kiln dust (LKD) into the reagent offloading cage and into the reagent storage pig

- Evergreen Transport completes unloading lime kiln dust (LKD); 25.39 tons into reagent offloading cage and 18.98 tons into the reagent storage pig

- Evergreen Transport offsite

- WRScompass shutdown work activities for the day

22:30 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:



CQA Monitor Signature



Date



Project: Sludge Lagoon Closure

Date: May 20, 2010

Construction Day No.: 25

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Weather: Mostly cloudy, breezy, rain - morning;

rain, clearing to sunny - afternoon; 66° - 74°

## ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation  |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Baghouse maintenance; reagent offloading cage maintenance; unload lime kiln dust (LKD) |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Jeff Habegger, Felix Moran, Tyrone Terry, Juan Ramirez

Roy Worley Septic Tank Service, Grenada, MS

Mike Henderson and Robert Frederick - Evergreen Transport LLC, Evergreen, AL

Roy Worley - Roy Worley Septic Tank Service, Grenada, MS

Vaughn Doerner - Braham Contracting, Grenada, MS

## SUMMARY OF WORK:

6:40- RAI onsite; M. Slovensky, Jeff Habegger, and Felix Moran of WRSccompass onsite; WRSccompass workforce onsite - 6:45

- Site safety meeting; discussed night truck backing; can't shine lights in mirrors - blinds driver; shine lights on ground in line where need trailer tire to run

- WRSccompass begins work activities for the day; clean and maintain reagent storage pig baghouse and reagent offloading cage; change out green hoses; move reagent offloading cage; unload lime kiln dust (LKD) trucks

- RAI offsite to hotel to connect to BC servers

- RAI onsite; WRSccompass working on moving reagent offloading cage and staking out solidification cells in the lagoon

- RAI telephone conversation w/KL; KL to e-mail AutoCAD files to Jake Mattox of EMC Surveying in Grenada, MS

- WRSccompass using plastic to cover lime kiln dust (KLD)

- WRSccompass positioning reagent offloading cage and covering w/plastic

- Roy Worley Septic Tank Service onsite; delivered 4-inch diameter suction hose

- WRSccompass breaks for lunch; RAI offsite to hotel to connect to BC server

- Evergreen Transport LLC, Evergreen, AL onsite; lime kiln dust (LKD) delivery; 7th load; Mike Henderson - driver

- RAI onsite

- Evergreen Transport unloading lime kiln dust (LKD) 7th load into the reagent offloading cage

- Evergreen Transport LLC, Evergreen, AL onsite; lime kiln dust (LKD) delivery; 8th load; Robert Frederick - driver

- Roy Worley onsite

- Roy Worley offsite

- Evergreen Transport continuing to unload lime kiln dust (LKD) into the reagent offloading cage

- Evergreen Transport completes unloading lime kiln dust (LKD); 7th load; 24.73 tons into reagent offloading cage

- Evergreen Transport - Mike Henderson offsite

- Evergreen Transport unloading lime kiln dust (LKD) 8th load into the reagent offloading cage

- Vaughn Doerner onsite

- Evergreen Transport completes unloading lime kiln dust (LKD); 8th load; 23.61 tons into reagent offloading cage

- Evergreen Transport - Robert Frederick offsite

- Vaughn Doerner offsite

- WRScompass using plastic to cover lime kiln dust (KLD) and reagent offloading cage

- WRScompass shutdown work activities for the day

18:45 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:



CQA Monitor Signature

5/20/10

Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: May 21, 2010

Construction Day No.: 26

Weather: Rain, thunder/lightning - morning;  
partly cloudy, clearing to sunny - afternoon; 67° - 92°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Dewatering                                     | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Felix Moran, Tyrone Terry, Juan Ramirez

Luther Owens and JT Turner - Willis Engineering, Inc., Grenada, MS

Roy Worley, Billy Robinson, and Franklin Sykes - Roy Worley Septic Tank Service, Grenada, MS

Vaughn Doerner and Butch - Barham Contracting, Grenada, MS

#### SUMMARY OF WORK:

6:45- RAI onsite; M. Slovensky, Jeff Habegger, and Felix Moran of WRSScompass onsite; WRSScompass workforce onsite - 6:50

- Site safety meeting: discussed chemical hazards - dust from lime kiln dust (LKD) and Type I Portland cement, low level chromium and VOCs; continuous air monitoring; stay up wind

- WRSScompass begins work activities for the day; check and maintain erosion/sediment controls

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100 ppm; iso-butylene 100 ppm

- Willis Engineering onsite

- Vaughn Doerner onsite

- Willis Engineering offsite

- Vaughn Doerner offsite

- RAI offsite to post office

- RAI onsite

- Roy Worley Septic Tank Service onsite; Billy Robinson to be subcontract employee to WRSScompass

- WRSScompass begins solidification in Cell 1

- RAI begins continuous air monitoring

- Air monitoring: 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0 ppm; 11:00 - 0.0 ppm; 1115 - 0.0 ppm

- Excavator breakdown - hydraulic pump; solidification stopped

- Roy Worley Septic Tank Service onsite; Franklin Sykes to be subcontract employee to WRSScompass

- WRSScompass can not get excavator onsite until Saturday, May 22, 2010; solidification stopped for the day

- RAI stops continuous air monitoring

- Roy Worley, Billy Robinson, and Franklin Sykes offsite

- WRSScompass breaks for lunch; RAI offsite for lunch

- RAI onsite

- WRSScompass restarts solidification in Cell 1; watch temperature of hydraulic fluid and let machine set, if temperature spikes

- RAI begins continuous air monitoring; will check at 15 minutes intervals and record on Air Monitoring Form for the day

- Barham Contracting onsite

- RAI conducts Weekly Progress Meeting; Attendees: RAI and ERG of BC, M. Slovinsky, J. Habegger, F. Moran, and T Morrow of WRScompass

- WRScompass continuing to perform solidification in Cell 1

- RAI reviews lime kiln dust (LKD) submittal from MINTEK Resources, Inc. of Beavercreek, OH; return to F. Moran of WRScompass marked as "No Exceptions Taken"

- WRScompass stops solidification for the day; working on site cleanup

- WRScompass shutdown work activities for the day

17:20 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*[Handwritten Signature]*

CQA Monitor Signature

*5/21/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** May 22, 2010

**Construction Day No.:** 27

**Weather:** Clear, sunny, haze/fog moving in - morning;  
partly cloudy, clearing to sunny - afternoon; 70° - 92°

#### ITEMS WORKD ON:

- |   |   |
|---|---|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input checked="" type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation   |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation  |
| <input type="checkbox"/> Subbase Construction                           | <input checked="" type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Moving/positioning reagent offloading box;<br>testing reagent storage pig blower |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Felix Moran, Tyrone Terry, Juan Ramarez

Steve McCormick - McCormick Equipment & Excavating, Grenada, MS

Butch McNutt - Barham Contracting, Grenada, MS

Luther Owens - Willis Engineering, Inc., Grenada, MS

#### SUMMARY OF WORK:

6:35- RAI onsite; M. Slovensky and Jeff Habegger of WRSScompass onsite; WRSScompass workforce onsite - 6:50; F. Moran of WRSScompass onsite - 7:40

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100 ppm; iso-butylene 100 ppm

- Site safety meeting; discussed hearing protection; use ear plugs working around equipment; ear plugs will also keep dust out ears; ear plugs available at trailer; dispose of properly

- WRSScompass begins work activities for the day; move and position reagent offloading box and unload lime kiln dust (LKD) from the reagent storage pig; continue solidification in Cell 1

- RAI performs erosion/sediment control inspection; 0.5 and 0.7 inches of rain at site on 5/20/10 and 05/21/10, respectively; NW corner of silt fence trench settled - place fill soil

- Steve McCormick of McCormick Equipment & Excavating onsite/offsite

- WRSScompass begins solidification in Cell 1

- RAI begins continuous air monitoring

- Air monitoring: 845 - 0.0 ppm; 900 - 0.0 ppm; 901 - 0.01 ppm; 902 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; will check at 15 minute intervals and record on Air Monitoring Form for the day

- Barham Contracting onsite

- WRSScompass unloads and positions blower by reagent storage pig; blower repaired by Barham Contracting

- Barham Contracting offsite

- Air monitoring: 1000 - 0.1 ppm; 1015 - 0.1 ppm; 1030 - 0.1 ppm; 1045 - 0.1 ppm; 1100 - 0.1 ppm; 1115 - 0.1 ppm; 1130 - 0.1 ppm; 1145 - 0.1 ppm

- Willis Engineering onsite - collecting demonstration test sampling

- WRSScompass requests to resume pumping water from the lagoon due to the water from rain events on Thursday/Friday, May 20/21, 2010; 1.2 inches of rain

- RAI talks to Don Williams of ICE Industries, Inc. to find out if resuming lagoon water pumping is okay; Don says it is okay and RAI tells Don the sampling protocols will continue to be followed; RAI talks to Jim Peebles to inform Jim that WRSScompass has requested to pump water from the lagoon; RAI sends e-mail to ERG and JPP regarding lagoon water pumping

- WRSScompass starts lagoon water pumping; initial flow meter reading - 347,900 gallons

- Air monitoring - 0.1 ppm

- Solidified sludge samples collected for full-scale demonstration

- WRScompass setting up to unload lime kiln dust (LKD) from reagent storage pig to Cell 2 area of the lagoon

- RAI collects a sample of water being pumped from the lagoon to deliver to Don Williams of ICE Industries, Inc. on Monday, May 24, 2010 for check of clarity, odor, and pH

- Air monitoring 0.1 ppm; WRScompass decides to suspend solidification for the day; RAI suspends continuous air monitoring

- WRScompass shuts off lagoon pumps

- RAI checks lagoon pump flow meter; reading - 351,700 total gallons; 3,800 gallons pumped on 05/22/10

- WRScompass cleaning up site

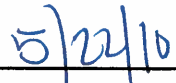
- WRScompass shuts down work activities for the day; workforce offsite

17:20 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

  
CQA Monitor Signature

  
Date



Project: Sludge Lagoon Closure

Date: May 24, 2010

Construction Day No.: 28

Project No: 138466

Location: Grenada, Mississippi

Weather: Clear, sunny, humid - morning;  
partly cloudy - afternoon; 70° - 94°

BC Personnel: R. Isaac

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input checked="" type="checkbox"/> Pumping Lagoon Water     | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Unloading reagents          |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Jeff Habegger, Felix Moran, Tyrone Terry, Juan Ramirez David Hunter and Nathan Cannon - Southern Tank Transport, Inc., Holly Hill, SC  
 Butch McNutt - Barham Contracting, Grenada, MS Herman Lee and Richard Poe - J&M Tank Lines, Inc., Americus, GA  
 Larry Hayward - Hayward's Custom Wood Grinding, Grenada, MS Don Williams - ICE Industries, Inc., Grenada, MS  
 Malcolm Bruce and Boyce Howard - Wooten Transport, Inc., Memphis, TN  
 Frank Caldwell - Caldwell Tree Service, Grenada, MS

## SUMMARY OF WORK:

6:45- RAI onsite; M. Slovensky, Jeff Habegger, and F. Moran of WRScompass onsite; WRScompass workforce onsite - 6:47

- Wooten Transport, Inc. of Memphis, TN onsite; Type I Portland cement from Holcim, Inc.; 3rd load

- Site safety meeting: discussed hot work permit for welding; WRScompass has form to be filled out; fire watch - at least 30 minutes following completion of hot work

- WRScompass begins work activities for the day; setup reagent unloading tanks; will unload 2 trucks of Type I Portland cement and 4 trucks of lime kiln dust (LKD)

- RAI calibrates MiniRAE 3000: zero cal - 0.0 ppm, span cal - 100.4 ppm; iso-butylene 100 ppm

- Butch McNutt onsite/offsite

- Larry Hayward onsite/offsite; looking at cutting trees at the RR Borrow Area

- Wooten Transport, Inc. of Memphis, TN onsite; Type I Portland cement from Holcim, Inc.; 4th load

- Frank Caldwell onsite/offsite; looking at cutting trees at the RR Borrow Area

- RAI delivers lagoon water sample from Saturday, May 22, 2010 to Don Williams of ICE Industries, Inc.; Don says sample look good

- RAI drops cooler for overnight delivery to CTL Group in Skokie, IL at loading dock for pickup by Fed Ex

- Southern Tank Transport, Inc. of Holly Hill, SC onsite; lime kiln dust (LKD) from Chem Lime; 9th load

- Southern Tank Transport, Inc. of Holly Hill, SC onsite; lime kiln dust (LKD) from Chem Lime; 10th load

- Wooten Transport, Inc. begins unloading Type I Portland cement into unloading tank

- Wooten Transport, Inc. completes unloading Type I Portland cement into unloading tank; 3rd load - 26.72 tons

- Southern Tank Transport, Inc. begins unloading lime kiln dust (LKD) into unloading tank

- Wooten Transport, Inc. offsite - Malcolm Bruce

- Wooten Transport, Inc. begins unloading Type I Portland cement into unloading tank

- WRScompass starts lagoon water pumping

- RAI checks lagoon pump flow meter; reading - 356,100 total gallons

- RAI collects a sample of water being pumped from the lagoon to deliver to Don Williams of ICE Industries, Inc. for check of clarity, odor, and pH

- Wooten Transport, Inc. completes unloading Type I Portland cement into unloading tank; 4th load - 26.63 tons

- Wooten Transport, Inc. offsite - Boyce Howard

- Southern Tank Transport, Inc. begins unloading lime kiln dust (LKD) into unloading tank

- Southern Tank Transport, Inc., completes unloading lime kiln dust (LKD) into unloading tank; 9th load - 25.54 tons

- WRScompass shuts off lagoon water pumping

- Southern Tank Transport, Inc. offsite - David Hunter

- RAI checks lagoon pump flow meter; reading - 360,200 total gallons; 9,400 gallons pumped on 05/24/10

- J&M Tank Lines, Inc. of Americus, GA onsite; lime kiln dust (LKD) from Chem Lime; 11th load

- WRScompass moving unloading tanks for next two loads of lime kiln dust (LKD)

- Southern Tank Transport, Inc., completes unloading lime kiln dust (LKD) into unloading tank; 10th load - 26.04 tons

- Brewston Express of Winfield, LA onsite to deliver Komatsu PC 300LC track-mounted excavator; H&E Equipment Services

- J&M Tank Lines, Inc., begins unloading lime kiln dust (LKD) into unloading tank

- J&M Tank Lines, Inc. of Americus, GA onsite; lime kiln dust (LKD) from Chem Lime; 12th load

- Barham Contracting onsite/offsite to deliver clean 55-gallon drums

- J&M Tank Lines, Inc., completes unloading lime kiln dust (LKD) into unloading tank; 11th load; 25.76 tons

- J&M Tank Lines, Inc., begins unloading lime kiln dust (LKD) into unloading tank

- J&M Tank Lines, Inc. offsite - Herman Lee

- WRScompass covering unloaded lime kiln dust (LKD) and Type I Portland cement w/plastic

- J&M Tank Lines, Inc., completes unloading lime kiln dust (LKD) into unloading tank; 12th load; 25.89 tons

- J&M Tank Lines, Inc. offsite - Richard Poe

- WRScompass cleaning up and shut down work activities for the day

19:20 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: Air Monitoring Form

*[Handwritten Signature]*

CQA Monitor Signature

*5/24/10*

Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: May 25, 2010

Construction Day No.: 29

Weather: Mostly sunny, humid; thunder/lightning/rain - morning;  
clearing, sunny, hot - afternoon; 71° - 88°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Site clean up               |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramarez Butch McNutt - Barham Contracting, Grenada, MS  
Wayne Heywood - Puckett Machinery, Inc., Jackson, MS Fred Doerner - Barham Contracting, Grenada, MS  
Meredith Anderson and Sharon Matthews - U.S. EPA Region 4, Atlanta, GA  
Don Williams - ICE Industries, Inc., Grenada, MS  
Vaughn Doerner - Barham Contracting, Grenada, MS

#### SUMMARY OF WORK:

6:40 - RAI onsite; M. Slovensky and F. Moran of WRScompass onsite; WRScompass workforce onsite - 6:50

- Site safety meeting: discussed heat stress - keep hydrated, drink plenty of water; will perform emergency response drill at some point; everyone needs to know where and how to get to the hospital; directions and maps are posted in the office trailer and in all vehicles

- WRScompass begins work activities for the day; move unloading tanks for addition of drums; solidification; excavator repair; site clean up

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.0 ppm; 100 ppm iso-butylene

- Initial air monitoring reading: 706 - 0.0 ppm; 715 - 0.0 ppm; 730 - 0.0 ppm; 745 - 0.0 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 817 - air monitoring fluctuating between 0.1 ppm and 0.2 ppm at lagoon surface level then back to 0.0 ppm at top of berm

- Puckett Machinery onsite/offsite; worked on Caterpillar 330CL excavator repairs

- Meredith Anderson and Sharon Matthews of the U.S. EPA Region 4, Atlanta, GA onsite; site visit to observe the sludge material solidification process

- WRScompass suspends solidification due to thunder/lightning

- Rain begins; work suspended

- Rain stops; solidification resumes; RAI performing air monitoring

- Air monitoring readings: 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1155 - 0.0 ppm

- U.S. EPA offsite

- WRScompass breaks for lunch

- RAI breaks for lunch

- WRScompass resumes solidification; RAI resumes air monitoring

- Air monitoring 0.2 ppm to 0.3 ppm; no odors - RAI recalibrates the MiniRAE 3000; zero cal - 0.0 ppm; span cal - 100.0 ppm; 100ppm iso-butylene

- RAI telephone call w/Don Broton of CTL Group; lime kiln dust (LKD), Type I Portland cement, and sludge material samples received by the lab; Don to send cooler back

- RAI resumes air monitoring: 1306 - 0.0 ppm; 1315 - 0.0 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; 1430 - 0.0 ppm; 1500 - 0.0 ppm

- Barham Contracting onsite - welding drums on unloading tanks

- WRScompass continuing to solidify sludge material in Cell 1

- WRScompass suspends solidification for machine fueling; RAI suspends air monitoring

- WRScompass resumes solidification; RAI resumes air monitoring; reading: 1720 - 0.0 ppm

- WRScompass collects solidified sludge material from Cell 1 for cylinder molds; eight cylinders made

- WRScompass suspends solidification for the day; RAI suspends air monitoring; final reading: 1823 - 0.0 ppm

- WRScompass setting up for reagent deliveries on 05-26-10

- Barham Contracting offsite

- WRScompass cleaning up and shuts down work activities for the day

18:55 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*RUG 2*

CQA Monitor Signature

*5/25/10*

Date

**Project:** Sludge Lagoon Closure

**Date:** May 26, 2010

**Construction Day No.:** 30

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly sunny, humid - morning;  
mostly sunny, hot - afternoon; 68° - 94°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |   |   |
|---|---|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation           |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation   |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation      |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                                  |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading; site clean up |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez Meredith Anderson and Brian Bastek - U.S. EPA, Region 4, Atlanta, GA

Stephen King - Wooten Transport, Inc, Memphis, TN

Cody Arnold - Mississippi DEQ, Oxford, MS

Jorge Suarez - Southern Tank Transport, Inc., Holly Hill, SC

Paul Addison and William Holland - Southern Tank Transport, Inc., Holly Hill, SC

Tom Millwee - Chemical Lime, Birmingham, AL

Don Williams - ICE Industries, Inc., Grenada, MS

#### SUMMARY OF WORK:

6:35 - RAI onsite; M. Slovensky and WRSScompass workforce onsite; F. Moran of WRSScompass onsite - 6:45

- Site safety meeting: discussed working around heavy equipment; make sure the operator can see you; use two-way radio or hand signals to communicate

- WRSScompass begins work activities for the day; unload reagent (1 load of Type I Portland cement and 3 loads of lime kiln dust (LKD); solidification

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.7 ppm; 100 ppm iso-butylene

- Wooten Transport, Inc. onsite; Type I Portland cement; Holcim, Inc. ; 5th load; Stephen King - driver

- Southern Tank Transport, Inc. onsite; lime kiln dust (LKD); Chem Lime; 13th load; Jorge Suarez - driver

- Wooten Transport, Inc. begins unloading Type I Portland cement into unloading tank; 5th load

- Southern Tank Transport, Inc. begins unloading lime kiln dust (LKD) into unloading tank; 13th load

- Wooten Transport, Inc. completes unloading Type I Portland cement into unloading tank; 5th load; 26.71 tons

- Wooten Transport, Inc. offsite; Stephen King - driver

- Chemical Lime onsite - Tom Millwee

- Southern Tank Transport, Inc. completes unloading lime kiln dust (LKD) into unloading tank; 13th load; 25.18 tons

- Southern Tank Transport, Inc. offsite; Jorge Suarez - driver

- WRSScompass fueling excavator

- Meredith Anderson and Brian Bastek of the U.S. EPA, Region 4, Atlanta, GA onsite; Don Williams of ICE Industries, Inc. onsite

- WRSScompass moving reagent unloading tanks for delivery of two more loads of lime kiln dust (LKD)

- WRSScompass breaks for lunch

- Meredith Anderson and Brian Bastek of the U.S. EPA, Region 4, Atlanta, GA offsite; Don Williams of ICE Industries, Inc. offsite

- RAI breaks for lunch

- WRSScompass setting up to receive two loads of lime kiln dust (LKD) and site clean up

- WRSScompass collects a sample of sludge material from Cell 2 for moisture content

- Cody Arnold of the MDEQ and Don Williams onsite; drive back to look at the PRB wall; brief stop to look at the lagoon

- MDEQ and Don Williams offsite

- WRSScompass begins solidification in Cell 2; RAI begins air monitoring; initial reading - 0.0 ppm

- Air monitoring: 1430 - 0.0 ppm; 1445 - 0.0 ppm; 1500 - 0.0 ppm; 1515 - 0.0 ppm; 1525 - 0.1 ppm; 1530 - 0.0 ppm; 1545 - 0.0 ppm; 1600 - 0.0 ppm; 1615 - 0.0 ppm

- Air monitoring: 1448 - spike to 0.3 ppm, then back to 0.0 ppm; coincides w/sludge material brought to surface by excavator

- Southern Tank Transport, Inc. onsite; lime kiln dust (LKD); Chem Lime; 14th load; Paul Addison - driver

- Southern Tank Transport, Inc. begins unloading lime kiln dust (LKD) into unloading tank; 14th load

- Southern Tank Transport, Inc. onsite; lime kiln dust (LKD); Chem Lime; 15th load; William Holland - driver

- Southern Tank Transport, Inc. begins unloading lime kiln dust (LKD) into unloading tank; 15th load

- Southern Tank Transport, Inc. completes unloading lime kiln dust (LKD) into unloading tank; 14th load; 26.16 tons

- Southern Tank Transport, Inc. completes unloading lime kiln dust (LKD) into unloading tank; 15th load (partial load); 24.53 tons

- WRScompass shuts down work activities for the day

21:30 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*[Handwritten Signature]*

CQA Monitor Signature

*5/26/10*

Date



**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** May 27, 2010

**Construction Day No.:** 31

**Weather:** Clear, sunny, warm - morning;  
mostly sunny, hot - afternoon; 67° - 98°

#### ITEMS WORKD ON:

- |   |   |
|---|---|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation           |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation   |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation      |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                                  |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading; site clean up |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez Sharon Matthews - U.S. EPA, Region 4, Atlanta, GA  
William Holland - Southern Tank Transport, Inc., Holly Hill, SC Don Williams - ICE Industries, Inc., Grenada, MS  
Frankie Peek - Sourcing Solutions, Beaverton, OR Benji Britt - Lehman Roberts, Memphis, TN  
Ernest Jeffries - Wooten Transport, Inc., Memphis, TN  
Jason Winstead - Puckett Machinery, Jackson, MS

#### SUMMARY OF WORK:

6:40 - RAI onsite; M. Slovensky and Southern Tank Transport, Inc., Holly Hill, SC onsite; F. Moran and WRSScompass workforce onsite - 6:45

- Site safety meeting: discussed PPE - wear tyvek and gloves when unloading reagents and working around the unloading tanks

- WRSScompass begins work activities for the day; unload reagent (1 load of Type I Portland cement and complete 1 load of lime kiln dust (LKD); solidification

- Sourcing Solutions onsite; delivery of swamp mats

- Wooten Transport, Inc. onsite; Type I Portland cement; Holcim, Inc. ; 6th load; Ernest Jeffries - driver

- WRSScompass setting up to unload remaining lime kiln dust (LKD)

- WRSScompass unloading swamp mats

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.9 ppm; 100 ppm iso-butylene

- Sourcing Solutions offsite

- Southern Tank Transport, Inc. begins unloading remaining lime kiln dust (LKD) into unloading tank; 16th load

- Southern Tank Transport, Inc. completes unloading remaining lime kiln dust (LKD) into unloading tank; 16th load

- Southern Tank Transport, Inc. offsite

- Wooten Transport, Inc. begins unloading Type I Portland cement into unloading tank; 6th load

- RAI preparing sludge material sample (moisture content) and solidified sludge cylinders for shipment to CTL Group

- Wooten Transport, Inc. completes unloading Type I Portland cement into unloading tank; 6th load; 26.60 tons

- Wooten Transport, Inc. offsite

- WRSScompass setting up to begin sludge solidification in Cell 2

- Puckett Machinery onsite - load Caterpillar 330CL track-mounted excavator offsite for repairs

- WRSScompass decontaminating sticks and bucket of the Caterpillar 330CL track-mounted excavator

- WRSScompass begins solidification in Cell 2 for the day; RAI begins air monitoring; initial reading - 0.0 ppm

- RAI takes sample cooler to loading dock for pickup by Fed Ex

- Air monitoring: 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1200 - 0.0 ppm; 1215 - 0.1 ppm; 1219 - 0.0 ppm; 1230 - 0.1 ppm; 1238 - 0.1 ppm

- Puckett Machinery offsite

- WRSScompass suspends solidification for lunch; RAI suspends air monitoring; RAI offsite for lunch to hotel

- Sharon Matthews of the U.S. EPA Region 4, Atlanta, GA onsite; Don Williams of ICE Industries, Inc. onsite - tour site and watch sludge solidification

- WRScompass resumes sludge solidification in Cell 2; RAI resumes air monitoring

- Air monitoring: 1415 - 0.1 ppm; 1430 - 0.1 ppm; 1445 - 0.1 ppm; 1500 - 0.1 ppm; 1515 - 0.1 ppm; 1530 - 0.1 ppm; 1545 - 0.1 ppm; 1600 - 0.1 ppm; 1615 - 0.1 ppm; 1630 - 0.1 ppm; 1645 - 0.1 ppm

- Sharon Matthews and Don Williams offsite

- WRScompass collects solidified sludge sample from Cell 2 for eight cylinders

- WRScompass suspends solidification in Cell 2 for the day; RAI suspends air monitoring; final reading - 0.1 ppm at 1645

- WRScompass cleaning up site and covering all materials for the long weekend

- WRScompass shuts down work activities for the day

- Lehman Roberts onsite - welding for reagent unloading tanks

17:30 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

\_\_\_\_\_

\_\_\_\_\_

*[Handwritten Signature]*

CQA Monitor Signature

*5/27/10*

Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: May 28, 2010

Construction Day No.: 31A

Weather: Sunny, warm; 66°

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Site security               |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky and Tyrone Terry

## SUMMARY OF WORK:

7:00 - RAI onsite; M. Slovensky and T. Terry of WRSccompass onsite

- WRSccompass begins work activities for the day; checking to make sure materials are covered, tools put away, and equipment/office trailer/tool trailers are secured

- RAI preparing solidified sludge cylinders for Cell 2 for delivery to CTL Group

- RAI participates in the weekly workload conference call

- RAI completes cylinder shipping

- RAI offsite to Fed Ex in Batesville, MS

- RAI delivers cooler w/solidified sludge cylinders to Fed EX in Batesville, MS for shipment to CTL Group

9:45 - RAI travel to Columbus, OH

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: Air Monitoring Form

CQA Monitor Signature

Date

**Project:** Sludge Lagoon Closure

**Date:** June 2, 2010

**Construction Day No.:** 32

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny, warm - morning;  
mostly sunny, hot, rain - afternoon; 68° - 98°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado

Don Williams - ICE Industries, Inc., Grenada, MS

Roy Worley, Chris Williams, and Franklin Sykes - Roy Worley Septic Tank Service, Grenada, MS

Charles Snell and WC Melton - WC Melton, Grenada, MS

Hercial Culvers and Orville Gill - Evergreen Transport, LLC, Evergreen, AL

Larry Hayward -

George Humbertson and Paul Addison - Southern Tank Transport, Inc., Holly Hill, SC

#### SUMMARY OF WORK:

6:37 - RAI onsite; M. Slovensky, J. Habegger, and F. Moran onsite; WRSScompass workforce onsite - 6:50

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 102.3 ppm; 100 ppm iso-butylene

- Don Williams of ICE Industries, Inc. onsite/offsite; drop off deliveries

- Site safety meeting: discussed school being out for the summer and the need to pay attention to kids while driving offsite

- WRSScompass begins work activities for the day; unload lime kiln dust (LKD); put filter bags on reagent unloading tanks; solidification

- WC Melton onsite; stump grinding

- RAI re-calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.8 ppm; 100 ppm iso-butylene

- RAI measures the thickness of the apparent swell of solidified sludge material in Cell 2; 8-10 inches (approximate) measured w/carpenters rule

- RAI performs weekly erosion/sediment inspection - silt fence intact and no observed sediment outside silt fence

- WC Melton begins stump grinding along RR Borrow Area

- WRSScompass begins sludge solidification to complete Cell 2 w/overlap into Cell 3

- RAI begins air monitoring: initial reading 0.0 ppm

- Larry Hayward onsite/offsite; discuss tree removal along RR Borrow Area

- Air monitoring: 915 - 0.1 ppm; 925 - 0.0 ppm; 930 - 0.1 ppm; 945 - 0.0 ppm; 1000 - 0.1 ppm; 1015 - 0.1 ppm; 1030 - 0.1 ppm; 1045 - 0.1 ppm; 1100 - 0.1 ppm; 1115 - 0.1 ppm; 1130 - 0.1 ppm; 1145 - 0.1 ppm; 1150 - 0.1 ppm

- Southern Tank Transport, Inc. onsite; lime kiln dust (LKD); Chem Lime; 17th load; George Humbertson - driver

- Southern Tank Transport, Inc. begins to unload lime kiln dust (LKD) into the unloading tank

- Evergreen Transport, LLC. onsite; lime kiln dust (LKD); Chem Lime; 18th load; Hercial Culvers - driver

- Evergreen Transport, LLC. begins unloading lime kiln dust (LKD) into unloading tank

- WRSScompass breaks for lunch; RAI offsite

- RAI onsite; Barham Contracting onsite/offsite - repair office trailer generator

- Southern Tank Transport, Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 17th load: 25.47 tons

- WC Melton onsite

- Southern Tank Transport, Inc. offsite

- Evergreen Transport, LLC. onsite; lime kiln dust (LKD); Chem Lime; 19th load; Orville Gill - driver

- Evergreen Transport, LLC. begins unloading lime kiln dust (LKD) into unloading tank

- WRScompass resumes solidification of sludge material; RAI resumes air monitoring

- Initial air monitoring reading - 0.0 ppm at 1320

- Air monitoring: 1330 - 0.1 ppm; 1345 - 0.1 ppm; 1400 - 0.1 ppm; 1430 - 0.1 ppm; 1445 - 0.1 ppm; 1530 - 0.1 ppm; 1545 - 0.1 ppm; 1600 - 0.1 ppm; 1615 - 0.1 ppm; 1630 - 0.1 ppm; 1645 - 0.1 ppm; 1700 - 0.1 ppm; 1713 - 0.1 ppm

- Evergreen Transport, LLC completes unloading lime kiln dust (LKD) into unloading tank; 18th load; 25.31 tons

- RAI checks air monitoring at Cell2/Cell 3 interface - reading: 0.2 ppm; goes back to 0.1 ppm as soon as RAI walks away from the sludge material

- Evergreen Transport, LLC offsite

- Evergreen Transport, LLC completes unloading lime kiln dust (LKD) into unloading tank; 19th load; 21.3 tons

- RAI conducts Weekly Progress Meeting; attendees - M. Slovensky, J. Habegger, F. Moran of WRScompass and R. Isaac of BC

- Southern Tank Transport, Inc. onsite; lime kiln dust (LKD); Chem Lime; 20th load; Paul Addison - driver

- Southern Tank Transport, Inc. begins to unload lime kiln dust (LKD) into the unloading tank

- Roy Worley Septic Tank Services onsite/offsite; deliver water truck

- Solidification suspended due to rain; RAI suspends air monitoring

- Southern Tank Transport, Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 20th load; 25.38 tons

- Southern Tank Transport, Inc. offsite

- WRScompass shuts down work activities for the day

18:00 - RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

  
CQA Monitor Signature

6/2/10  
Date



**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 3, 2010

**Construction Day No.:** 33

**Weather:** Clear, sunny, warm, becoming partly cloudy - morning;  
mostly sunny, hot - afternoon; 72° - 95°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado

Larry Hayward - Roy Worley Septic Tank Services, Grenada, MS

Chris Williams, and Franklin Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

JC Warren - Wooten Transports, Inc., Memphis, TN

Ronnie Melton and Billy Robinson- Ronnie Welding, Grenada, MS

#### SUMMARY OF WORK:

6:40 - RAI onsite; M. Slovensky onsite; F. Moran and WRScompass workforce onsite - 6:50

- Site safety meeting: discussed slippery surfaces w/rain in late afternoon and walking on the solidified sludge material

- WRScompass begins work activities for the day; unload lime kiln dust (LKD) from the reagent storage pig; unload 1 load of Type I Portland cement; solidification

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.9 ppm; 100 ppm Iso-butylene

- WRScompass setting up and preparing for delivery of Type I Portland cement

- Wooten Transports, Inc. onsite; Type I Portland cement; Holcim, Inc.: 7th load; JC Warren - driver

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- Larry Hayward onsite; look at cutting trees along the RR Borrow Area

- WRScompass begins sludge solidification in Cell 3; RAI begins air monitoring: initial reading - 0.0 ppm

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 7th load; 26.34 tons

- Wooten Transports, Inc. offsite

- Air monitoring: 930 - 0.2 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1155 - 0.0 ppm; air monitoring suspended for lunch

- Dwight Stewart onsite; talk to M. Slovensky

- Air monitoring: spike to 0.3 ppm between 918 and 930; back down to 0.0 ppm at 931

- WRScompass begins using water to spray a mist over the lime kiln dust (LKD) and Type I Portland cement to suppress the dust

- WRScompass breaks for lunch; solidification suspended; RAI suspends air monitoring

- RAI offsite; deliver task order for compaction testing to Willis Engineering

- RAI onsite

- WRScompass resumes work activities; collected sample of sludge material from Cell 3 for moisture content analysis; unloading lime kiln dust (LKD) from the reagent storage pig; resumes solidification in Cell 3; RAI resumes air monitoring: initial reading - 0.1 ppm

- Air monitoring: 1315 - 0.1 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; 1415 - 0.1 ppm; 1430 - 0.1 ppm; 1445 - 0.1 ppm; 1500 - 0.1 ppm; 1515 - 0.1 ppm; 1530 - 0.1 ppm; 1545 - 0.0 ppm;

- Terex TXC 255 LC-1 track-mounted excavator onsite



- WRScompass continuing to solidify sludge material in Cell 3 and unload lime kiln dust (LKD) from the reagent storage pig

- RAI offsite to drop off sludge material sample from Cell 3 to Fed Ex in Batesville, MS for delivery to CTL Group for moisture content analysis

- RAI onsite; Ronnie Welding onsite - weld drum to unloading tank and make repairs

- WRScompass suspends solidification for the day; RAI suspends air monitoring - 1715 - 0.1 ppm

- WRScompass cleaning up the site for the day and setting up for work on 06-04-10

- WRScompass shuts down work activities for the day

18:27 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

  
CQA Monitor Signature

6/3/10  
Date

Project: Sludge Lagoon Closure

Date: June 4, 2010

Construction Day No.: 34

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Weather: Overcast, light rain, muggy, clearing - morning;  
mostly sunny, hot - afternoon; 72° - 90°

## ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado Butch McNutt - Barham Contracting, Grenada, MS

Malcolm Bruce - Wooten Transports, Inc., Memphis, TN

Chris Williams, and Franklin Sykes - Roy Worley Septic Tank Service, Grenada, MS

Vincent Hudson and Bill Rankin - Rogers Cartage Company, Calera, AL

Don Williams - ICE Industries, Inc., Grenada, MS

Josh Costilow, Gary Costilow, and Paul Williams - Active Tree Service, Grenada, MS

Ronnie Melton - Ronnie Welding, Grenada, MS

Bobby Burton - RSE, Grenada, MS

## SUMMARY OF WORK:

6:40 - RAI onsite; M. Slovensky onsite; F. Moran and WRSScompass workforce onsite - 6:45 and 7:00

- Site safety meeting: discussed site litter control; pick up trash and put trash cans; WRSScompass is having a dumpster brought onsite today

- WRSScompass begins work activities for the day; unload lime kiln dust (LKD) from the reagent storage pig; unload lime kiln dust (LKD) and Type I Portland cement; solidification

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.9 ppm; 100 ppm iso-butylene

- WRSScompass setting up and preparing for delivery of Type I Portland cement and lime kiln dust (LKD)

- Wooten Transports, Inc. onsite; Type I Portland cement; Holcim, Inc.; 8th load; Malcolm Bruce - driver

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- WRSScompass begins sludge solidification to complete Cell 3; RAI begins air monitoring; initial reading - 0.0 ppm

- WRSScompass begins lime kiln dust (LKD) unloading from the reagent storage pig into the unloading tank

- Air monitoring: 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm;

- Rogers Cartage Company onsite; lime kiln dust (LKD); Chem Lime; 20th load; Vincent Hudson - driver

- Rogers Cartage Company onsite; lime kiln dust (LKD); Chem Lime; 21st load; Bill Rankin- driver

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 8th load; 26.5 tons

- Wooten Transports, Inc. offsite

- Active Tree Service onsite; look at tree cutting along the RR Borrow Area

- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank; 20th load

- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank; 21st load

- Active Tree Service offsite

- RSE onsite/offsite; delivered trash dumpster and removed debris dumpster

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 20th load; 26.1 tons

- Rogers Cartage Company offsite

- WRSScompass suspends solidification to setup for next cell; RAI suspends air monitoring; final reading - 0.0 ppm

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 21st load; 27.68 tons

- Rogers Cartage Company offsite

- WRScompass begins unloading lome kiln dust (LKD) from the reagent storage pig

- WRScompass breaks for lunch; RAI offsite to post office

- RAI onsite

- Barham Contracting onsite/offsite - servicing the office trailer generator

- WRScompass resumes solidification at the interface between Cell 3 and Cell 4; RAI resumes air monitoring: initial reading - 0.0 ppm; setting up to resume unloading the reagent storage pig and one load of Type I Portland cement

- Air monitoring: 1300 - 0.0 ppm; 1315 - 0.0 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; 1430 - 0.0 ppm; 1445 - 0.1 ppm; 1500 - 0.1 ppm; 1515 - 0.1 ppm; 1530 - 0.1 ppm; 1545 - 0.1 ppm; 1600 - 0.1 ppm; 1615 - 0.1 ppm; 1630 - 0.1 ppm; 1645 - 0.0 ppm; 1700 - 0.0 ppm

- WRScompass collected a sample of solidified sludge from Cell 3 to make cylinders for UCS testing

- RAI conducts Weekly Progress Meeting

- Wooten Transports, Inc. onsite; Type I Portland cement; Holcim, Inc.; 9th load; Malcolm Bruce - driver

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 8th load; 26.6 tons

- Wooten Transports, Inc. offsite

- T. Terry of WRScompass and Chris Williams and Frank Sykes of Roy Worley Septic Tank Services offsite

- Ronnie welding onsite - repair reagent unloading tank

- WRScompass suspends solidification for the day; RAI suspends air monitoring - 1712 - 0.0 ppm

- WRScompass shuts down work activities for the day

17:30 - RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*RUAQ*

CQA Monitor Signature

6/4/10

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 5, 2010

**Construction Day No.:** 35

**Weather:** Mostly sunny, becoming overcast- morning;  
mostly cloudy, hot - afternoon; 75° - 88°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado

Clarence Sutton and Mike Coad - Shore Trucking Co., Inc., Maryville, TN

Chris Williams, and Franklin Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dave Lester and Kerry Rodacker - Shore Trucking Co., Inc., Maryville, TN

#### SUMMARY OF WORK:

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 22nd load; Clarence Sutton - driver

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 23rd load; Mike Coad - driver

6:40 - RAI onsite; M. Slovensky onsite; F. Moran and WRScompass workforce onsite - 6:50

- Site safety meeting: discussed excavations; do not walk along the edge of excavations and keep equipment back from the edge

- WRScompass begins work activities for the day; unload lime kiln dust (LKD) from the reagent storage pig; unload lime kiln dust (LKD) from hopper trucks; solidification

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.9 ppm; 100 ppm iso-butylene

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- WRScompass begins sludge solidification in Cell 7; RAI begins air monitoring; initial reading - 0.0 ppm

- WRScompass begins lime kiln dust (LKD) unloading from the reagent storage pig into the unloading tank

- Air monitoring: 730 - 0.0 ppm; 745 - 0.0 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm;

1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0; 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1200 - 0.0 ppm; 1215 - 0.0 ppm; 1230 - 0.0 ppm;

1245 - 0.0 ppm; 1300 - 0.0 ppm; 1315 - 0.0 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; solidification suspended for the day

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 22nd load; 25.58 tons

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co, Inc. offsite

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 24th load; Dave Lester - driver

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 23rd load; 24.83 tons

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 24th load; 26.8 tons

- Shore Trucking Co, Inc. offsite (2 trucks)

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 25th load; Kerry Rodacker - driver

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 25rd load; 23.8 tons

- Shore Trucking Co, Inc. offsite

- RAI offsite to True Value Hardware - 5-gallon bucket for collecting MINTEK lime kiln dust (LKD) sample

- RAI onsite

- RAI/WRScompass collect MINTEK lime kiln dust (LKD) sample

- WRScompass suspends solidification for the day; RAI suspends air monitoring - 1400- 0.0 ppm

- WRScompass refueling excavators and general site cleanup/security for the weekend

- WRScompass shuts down work activities for the day

14:40 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*[Handwritten Signature]*

CQA Monitor Signature

*6/5/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 7, 2010

**Construction Day No.:** 36

**Weather:** Clear, sunny- morning;

clear, sunny - afternoon; 70° - 88°

**ITEMS WORKD ON:**

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSccompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado Chris Williams and Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Ernest Jeffries and JC Warren - Wooten Transports, Inc., Memphis, TN

Booney Cunningham and Kerry Rodacker - Shore Trucking Co., Inc., Maryville, TN

Julius Harris and Bill Rankin - Rogers Cartage Company, Calera, AL

Williams Equipment & Supply, Oxford, MS

**SUMMARY OF WORK:**

6:33 - RAI onsite; M. Slovensky onsite; WRSccompass workforce onsite - 6:45

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 26th load; Booney Cunningham - driver

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 27th load; Kerry Rodacker - driver

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Site safety meeting: discussed walking on solidified sludge material; no one walks on the solidified sludge material without a buddy or someone watching; know where the life jacket is at all times

- WRSccompass begins work activities for the day: unload lime kiln dust (LKD) and Type I Portland cement from trucks; unload lime kiln dust (LKD) from the reagent storage pig; solidification

- Chris Williams and Frank Sykes of Roy Worley Septic Tank Service onsite

- F. Moran of WRSccompass onsite

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.8 ppm; 100 ppm iso-butylene

- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 10th load; Ernest Jeffries - driver

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- WRSccompass collects sludge material samples from Cell 4 and Cell 7 for moisture content analysis

- WRSccompass begins sludge solidification in Cell 4; RAI begins air monitoring; initial reading - 0.0 ppm

- Air monitoring: 745 - 0.0 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm;

1015 - 0.1 to 0.0 ppm; 1030 - 0.0; 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1200 - 0.0 ppm; 1205 - 0.0 ppm; solidification suspended

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 26th load; 25.77 tons

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co. Inc. offsite

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 10th load; 26.52 tons

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 27th load; 25.10 tons

- Wooten Transports, Inc. offsite

- Shore Trucking Co. Inc. offsite



- RAI performs weekly erosion/sediment control inspection; silt fence intact and no observed sediment outside of the silt fence

- Rogers Cartage Company of Calera, AL onsite; lime kiln dust (LKD); Chem Lime; 28th load; Julius Harris- driver

- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank

- Rogers Cartage Company of Calera, AL onsite; lime kiln dust (LKD); Chem Lime; 29th load; Bill Rankin- driver

- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 28th load; 25.74 tons

- Rogers Cartage Company offsite

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 29th load; 27.17 tons

- Rogers Cartage Company offsite

- WRScompass begins unloading lime kiln dust (LKD) from the reagent storage pig into the unloading tank

- RAI puts together sludge material samples and MINTEK lime kiln dust (LKD) sample for shipment to CTL Group for analysis

- WRScompass suspends solidification for lunch; RAI suspends air monitoring - 1205- 0.0 ppm

- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 11th load; JC Warren - driver

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- WRScompass resumes solidification in Cell 4; RAI resumes air monitoring: initial reading - 0.0 ppm

- Wooten Transports, Inc. offsite

- Air monitoring: 1330 - 0.0 ppm; 1345 - 0.1 ppm; 1400 - 0.1 ppm; 1415- 0.0 ppm/0.1 ppm; 1430- 0.1 ppm; 1445 - 0.1 ppm; 1500 - 0.1 ppm; 1515 - 0.1 ppm; 1530 - 0.1 ppm; 1545 - 0.1 ppm; 1600 - 0.1 ppm; 1615 - 0.0 ppm; 1626: solidification suspended for the day - final reading - 0.0 ppm

- WRScompass completes solidification in Cell 4 and sets up to begin solidification in Cell 7

- WRScompass collects a sample of solidified sludge material from Cell 4 to make cylinders

- Williams Equipment & Supply onsite; deliver geotextile and wood survey stakes

- Chris Williams and Frank Sykes offsite; water tanker offsite

- RAI reviewed the draft "In-Situ Solidification Demonstration Report" and returned to F. Moran of WRScompass

- WRScompass collects a sample of solidified sludge material from Cell 7 to make cylinders

- WRScompass suspends solidification for the day; RAI suspends air monitoring

- WRScompass shuts down work activities for the day; performing equipment maintenance and site clean up

17:17 - RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

  
CQA Monitor Signature

6/7/10  
Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Date: June 8, 2010

Construction Day No.: 37

Weather: Mostly sunny- morning;

clear to mostly sunny - afternoon; 68° - 94°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Mike Slovinsky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado Chris Williams and Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Ernest Jeffries and Eric Adams - Wooten Transports, Inc., Memphis, TN

Don Williams - ICE Industries, Inc., Grenada, MS

Randy Newsome and Dave Lester - Shore Trucking Co., Inc., Maryville, TN

Clarence Sutton and Kerry Rodacker - Shore Trucking Co., Inc., Maryville, TN

#### SUMMARY OF WORK:

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 30th load; Clarence Sutton - driver
- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank
- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 30th load; 25.18 tons
- 6:40 - RAI onsite; M. Slovinsky onsite; WRScopass workforce onsite - 6:45; Chris Williams and Frank Sykes of Roy Worley Septic Tank Service onsite - 6:45
- Shore Trucking Co., Inc. offsite
- Site safety meeting; discussed job site safety; postings on board outside office trailer in accordance w/State of Mississippi requirements; open enrollment for dependents
- WRScopass begins work activities for the day; unload lime kiln dust (LKD) and Type I Portland cement from trucks; unload lime kiln dust (LKD) from the reagent storage pig; solidification
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm; span cal - 99.7 ppm; 100 ppm iso-butylene
- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 12th load; Ernest Jeffries - driver
- WRScopass begins sludge solidification in Cell 5; RAI begins air monitoring; initial reading - 0.0 ppm
- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank
- Air monitoring: 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.1 ppm; 1145 - 0.1 ppm; 1145 - 0.0 ppm; 1200 - 0.0 ppm; 1156 - 0.1 ppm; solidification suspended - lunch
- RAI calls Don Williams of ICE Industries, Inc. about pump in sludge lagoon; Don would like to salvage pump; WRScopass to place pump on plastic for Don
- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 12th load; 26.53 tons
- Wooten Transports, Inc. offsite
- WRScopass removes emergency overflow pipeline at west end of the lagoon berm
- WRScopass begins unloading lime kiln dust (LKD) from the reagent storage pig into the unloading tank
- RAI putting together solidified sludge cylinders from Cell 3 for shipment to CTL Group for UCS analysis
- Scotts onsite - diesel fuel delivery
- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 13th load; Eric Adams - driver
- Scotts offsite
- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- WRScompass suspends solidification for lunch; RAI suspends air monitoring - 1156- 0.1 ppm

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 31st load; Kerry Rodacker - driver

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 13th load; 26.02 tons

- Wooten Transports, Inc. offsite

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 31st load; 24.74 tons

- Shore Trucking Co., Inc. offsite

- WRScompass collects sludge material sample from Cell 8 for moisture content analysis

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 32nd load; Randy Newsome - driver

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 33rd load; Dave Lester - driver

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- WRScompass begins sludge solidification in Cell 8; RAI begins air monitoring: initial reading - 0.0 ppm

- Air monitoring: 1530 - 0.0 ppm; 1545 - 0.1 ppm; 1600 - 0.1 ppm; 1615 - 0.1 ppm; 1630 - 0.1 ppm; 1645 - 0.1 ppm; 1700 - 0.1 ppm; 1715 - 0.1 ppm; 1730 - 0.1 ppm; 1745 - 0.1 ppm; 1800 - 0.1 ppm; 1810: solidification suspended for the day - final reading - 0.1 ppm

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 14th load; Eric Adams - driver

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 32nd load; 25.02 tons

- Shore Trucking Co., Inc. offsite

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 33nd load; 26.21 tons

- Shore Trucking Co., Inc. offsite

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- WRScompass suspends solidification for the day; RAI suspends air monitoring

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 14th load; 26.05 tons

- Wooten Transports, Inc. offsite

- WRScompass shuts down work activities for the day; performing equipment maintenance and site clean up

18:30 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

  
CQA Monitor Signature

6/8/10  
Date

**Project:** Sludge Lagoon Closure

**Date:** June 9, 2010

**Construction Day No.:** 38

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly cloudy; humid- morning;

Mostly sunny; hot - afternoon; 79° - 97°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado Frank Sykes and Billy Robinson - Roy Worley Septic Tank Service, Grenada, MS

Ernest Jeffries - Wooten Transports, Inc., Memphis, TN

Gennie Cummings - R&L Carriers

Jerry White and Bill Rankin - Rogers Cartage Company, Calera, AL

Booney Cunningham and Randy Newsome- Shore Trucking Co., Inc., Maryville, TN

Kerry Rodacker - Shore Trucking Co., Inc., Maryville, TN

#### SUMMARY OF WORK:

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 34th load; Booney Cunningham - driver
- M. Slovensky and J. Habegger of WRScompass onsite
- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank
- 6:30 - RAI onsite; F. Moran of WRScompass onsite; WRScompass workforce onsite - 6:45; Frank Sykes and Billy Robinson of Roy Worley Septic Tank Service onsite - 6:50
- Site safety meeting; discussed respirators use; full and partial face; need medical exam and fit test to be able to use
- WRScompass begins work activities for the day; unload lime kiln dust (LKD) and Type I Portland cement from trucks; unload lime kiln dust (LKD) from the reagent storage pig; solidification; ship reagent storage pig baghouse offsite today
- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 15th load; Ernest Jeffries - driver
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.0 ppm; 100 ppm iso-butylene
- WRScompass setting up to begin sludge solidification to complete Cell 5
- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 34th load; 25.41 tons
- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank
- Shore Trucking Co., Inc. offsite
- WRScompass collects sludge material sample from Cell 5 for moisture content analysis; WRScompass weighs 1 cubic-foot of sludge material from Cell 5 to determine density
- WRScompass begins sludge solidification in Cell 5; RAI begins air monitoring; initial reading - 0.1 ppm
- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 15th load; 26.49 tons
- Wooten Transports, Inc. offsite
- Air monitoring: 830 - 0.1 ppm; 845 - 0.1 ppm; 900 - 0.1 ppm; 915 - 0.1 ppm; 930 - 0.1 ppm; 945 - 0.1 ppm; 1000 - 0.1 ppm; 1015 - 0.1 ppm; 1030 - 0.1 ppm; 1045 - 0.1 ppm; 1100 - 0.1 ppm; 1115 - 0.1; 1130 - 0.1 ppm; 1137 - 0.1 ppm to 0.2 ppm; 1200 - 0.1 ppm; solidification suspended - lunch
- WRScompass taking reagent storage pig baghouse apart and getting ready for shipment offsite
- R&L Carriers onsite - take reagent storage pig baghouse offsite; not enough room in trailer - will return later this afternoon
- RAI putting together solidified sludge material samples from Cell 5 and Cell 8 for shipment to CTL Group for moisture content analysis
- Rogers Cartage Company of Calera, AL onsite; lime kiln dust (LKD); MINTEK; 35th load; Jerry White - driver
- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank

- WRScompass suspends solidification for lunch; RAI suspends air monitoring

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 36th load; Randy Newsome - driver

- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 16th load; Ernest Jeffries - driver

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- WRScompass begins sludge solidification in Cell 5; RAI begins air monitoring: initial reading - fluctuating irradically; RAI recalibrates the MiniRAE 300 PID

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 36st load; 24.55 tons

- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.3 ppm; 100 ppm iso-butylene

- Shore Trucking Co., Inc. offsite

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 35th load; 27.27 tons

- Rogers Cartage Company offsite

- RAI resumes air monitoring: initial reading - 0.0 ppm

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- Air monitoring: 1325 - 0.0 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; 1415 - 0.1 ppm; 1430 - 0.1 ppm; 1445 - 0.0 ppm; solidification suspended - completed Cell 5

- R&L Carriers onsite/offsite - take reagent storage pig baghouse offsite

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 16th load; 26.72 tons

- Rogers Cartage Company of Calera, AL onsite; lime kiln dust (LKD); MINTEK; 37th load; Bill Rankin - driver

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 38th load; Kerry Rodacker - driver

- Wooten Transports, Inc. offsite

- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- WRScompass suspends solidification - Cell 5 complete; RAI suspends air monitoring

- WRScompass collects solidified sludge sample from Cell 5 for cylinders

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 38th load; 25.75 tons

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 37th load; 27.10 tons

- Shore Trucking Co., Inc. offsite

- Rogers Cartage Company offsite

- WRScompass setting up to begin sludge solidification in Cell 8; excavating shelf in berm for unloading reagents along south side of the lagoon

- RAI reviewed geocomposite submittal from WRScompass

- WRScompass begins sludge solidification in Cell 8; RAI begins air monitoring: initial reading - 0.0 ppm

- Air monitoring: 1626 - 0.0 ppm; 1630 - 0.0 ppm; 1645 - 0.0 ppm; 1650 solidification suspended for the day

- WRScompass begins unloading lime kiln dust (LKD) from the reagent storage pig into the unloading tank

- WRScompass suspends solidification for the day; RAI suspends air monitoring

- WRScompass shuts down work activities for the day; performing equipment maintenance and site clean up

17:15 - RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*RMAQ*

CQA Monitor Signature

6/9/10

Date



**Project:** Sludge Lagoon Closure

**Date:** June 10, 2010

**Construction Day No.:** 39

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly cloudy; humid- morning;

Mostly sunny; hot - afternoon; 75° - 100°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado Frank Sykes and Billy Robinson - Roy Worley Septic Tank Service, Grenada, MS	
JC Warren - Wooten Transports, Inc., Memphis, TN	Rick Nelson - Walpole, Inc., Birmingham, AL
Cecil Moore and Kerry Rodacker - Shore Trucking Co., Inc., Maryville, TN	Don Williams - ICE Industries, Inc., Grenada, MS
Randy Newsome - Shore Trucking Co., Inc., Maryville, TN	Steve McCormick - McCormick Equipment & Excavating, Grenada, MS
Jerry Roper - Trimac Dry Bulk Group, Inc., Calera, AL	

#### SUMMARY OF WORK:

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD): MINTEK; 39th load; Cecil Moore - driver
- M. Slovensky of WRSScompass onsite
- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank
- 6:25 - RAI onsite; J. Habegger of WRSScompass onsite; WRSScompass workforce onsite - 6:42: Frank Sykes and Billy Robinson of Roy Worley Septic Tank Service onsite - 6:55
- Site safety meeting: discussed heat stress; drink plenty of water; watch out for one another; know the signs of heat stress
- F. Moran of WRSScompass onsite
- WRSScompass begins work activities for the day; unload lime kiln dust (LKD) and Type I Portland cement from trucks; unload lime kiln dust (LKD) from the reagent storage pig; solidification
- RAI calibrates MiniRAE 3000: zero cal - 0.0 ppm, span cal - 99.9 ppm; 100 ppm iso-butylene
- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 39th load; 25.87 tons
- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 17th load; JC Warren - driver
- Shore Trucking Co., Inc. offsite
- WRSScompass setting up to begin sludge solidification to complete Cell 6
- Trimac Dry Bulk Group, Inc. of Calera, AL onsite; lime kiln dust (LKD); Chem Lime; 40th load; Jerry Roper - driver
- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank
- Trimac Dry Bulk Group, Inc. begins lime kiln dust (LKD) into unloading tank
- WRSScompass collects sludge material sample from Cell 6 for moisture content analysis
- WRSScompass begins sludge solidification in Cell 6; RAI begins air monitoring: initial reading - 0.1 ppm
- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 17th load; 26.44 tons
- Wooten Transports, Inc. offsite
- Air monitoring: 830 - 0.1 ppm; 845 - 0.2 ppm; 900 - 0.2 ppm; 915 - 0.2 ppm; 930 - 0.2 ppm - 0.3 ppm; 945 - 0.2 ppm - 0.3 ppm; 1000 - 0.2 ppm; 1015 - 0.2 ppm; 1030 - 0.1 ppm; 1045 - 0.1 ppm; 1100 - 0.2; 1115 - 0.1 ppm; 1130 - 0.3 ppm; 1145 - 0.2 ppm; 1200 - 0.2; solidification suspended - lunch
- WRSScompass begins unloading lime kiln dust (LKD) from the reagent storage pig into the unloading tank
- Trimac Dry Bulk Group, Inc. completes lime kiln dust (LKD) into unloading tank; 40th load; 25.20 tons



- Trimac Dry Bulk Group, Inc. offsite

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 41st load; Kerry Rodacker - driver

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 42nd load; Randy Newsome - driver

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 41st load; 24.34 tons

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. offsite

- WRScompass completes unloading the reagent storage pig

- WRScompass suspends solidification for lunch; RAI suspends air monitoring

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 42nd load; 25.46 tons

- Shore Trucking Co., Inc. offsite

- M. Slovensky offsite - ill

- RAI re-calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.9 ppm; 100 ppm iso-butylene

- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 18th load; JC Warren - driver

- WRScompass resumes sludge solidification in Cell 6; RAI begins air monitoring: initial reading - 0.0 ppm

- Air monitoring: 1311 - 0.0 ppm; 1315 - 0.0 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; 1415 - 0.0 ppm; 1430 - 0.0 ppm; 1445 - 0.0 ppm; 1500 - 0.0 ppm; 1515 - 0.0 ppm; 1523 WRScompass suspends solidification in Cell 6: final reading - 0.0 ppm

- Don Williams onsite/offsite - taking pictures

- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank

- RAI putting together cylinders from Cell 4 and Cell 7 and sludge material samples from Cell 6 for moisture content analysis for shipment to CTL Group

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 18th load; 26.31 tons

- Wooten Transports, Inc. offsite

- Walpole, Inc. of Birmingham, AL onsite; lime kiln dust (LKD); Chem lime; 43rd load; Rick Nelson - driver

- Walpole, Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- RAI reviewed geocomposite QC submittal from WRScompass; returned marked "No Exceptions Taken"

- WRScompass suspends solidification in Cell 6; RAI suspends air monitoring: reading - 0.0 ppm

- WRScompass setting up to begin solidification in Cell 8

- Walpole, Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 43rd load; 25.10 tons

- WRScompass begins sludge solidification in Cell 8; RAI begins air monitoring: initial reading - 0.0 ppm

- Air monitoring: 1632 - 0.0 ppm; 1645 - 0.0 ppm; 1700 - 0.0 ppm; 1715 - 0.0 ppm; 1730 - 0.0 ppm; 1745 - 0.0 ppm; 1800 - 0.0 ppm; 1810 - solidification suspended for the day

- Walpole, Inc. offsite

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 44th load; Cecil Moore - driver

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 44th load; 25.78 tons

- Shore Trucking Co., Inc. offsite

- WRScompass suspends solidification for the day; RAI suspends air monitoring

- WRScompass shuts down work activities for the day; performing equipment maintenance and site clean up

- Steve McCormick onsite/offsite - delivering dump truck

18:30 - RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*[Signature]*

CQA Monitor Signature

6/10/10

Date

Project: Sludge Lagoon Closure

Date: June 11, 2010

Construction Day No.: 40

Project No: 138466

Location: Grenada, Mississippi

Weather: Overcast; humid- morning;

Mostly cloudy to clearing; hot; 78° - 95°

BC Personnel: R. Isaac

## ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input checked="" type="checkbox"/> Other: Reagent unloading           |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado Frank Sykes and Billy Robinson - Roy Worley Septic Tank Service, Grenada, MS

Clarence Sutton - Shore Trucking Co., Inc., Maryville, TN

Steve McCormick - McCormick Equipment &amp; Excavating, Grenada, MS

Malcolm Bruce and Tim Dunlap - Wooten Transports, Inc., Memphis, TN

Kerry Rodacker and Randy Newsome - Shore Trucking Co., Inc., Maryville, TN

Bill Rankin and Courtland Davis - Rogers Cartage Company, Calera, AL

## SUMMARY OF WORK:

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 45th load; Clarence Sutton - driver
- M. Slovensky and J. Habegger of WRSScompass onsite
- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank
- F. Moran and WRSScompass workforce onsite - 6:45; Frank Sykes and Billy Robinson of Roy Worley Septic Tank Service onsite - 6:50
- Site safety meeting: discussed site speed limit; trucks to 5 mph - includes everyone; help keep dust down
- 6:50 RAI onsite
- WRSScompass begins work activities for the day; unload lime kiln dust (LKD) and Type I Portland cement from trucks; prepare reagent storage pig blower motor for offsite shipment; solidification
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.0 ppm; 100 ppm iso-butylene
- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 45th load; 25.98 tons
- WRSScompass setting up to complete solidification in Cell 6
- Shore Trucking Co., Inc. offsite
- WRSScompass setting up to begin sludge solidification to complete Cell 6
- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 19th load; Malcolm Bruce - driver
- Wooten Transports, Inc. begins unloading Type I Portland cement into the unloading tank
- WRSScompass begins sludge solidification in Cell 6; RAI begins air monitoring: initial reading - 1.8 ppm to 2.1 ppm; RAI shuts down solidification; re-calibrates MiniRAE PID: zero cal - 0.0 ppm, span cal - 100.0 ppm; 100 ppm iso-butylene; initial reading - 0.0 ppm (no mixing); drager tube - 0.0 ppm; WRSScompass resumes solidification: reading - 2.2 ppm then down to 1.8 ppm; Drager tube - 0.0 ppm; RAI re-calibrates MiniRAE PID - zero cal - 0.0 ppm, span cal - 100.0 ppm; 100 ppm iso-butylene; initial reading - 0.0 ppm; as walk around fluctuates between 0.0 ppm to 1.1 ppm then back down to 0.0 ppm
- WRSScompass resumes sludge solidification in Cell 6; RAI begins air monitoring: initial reading - 0.0 ppm
- Air monitoring: 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1200 - 0.0 ppm; 1215 - 0.0 ppm; 1218 - WRSScompass suspends solidification for lunch
- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 19th load; 26.28 tons
- Wooten Transports, Inc. offsite

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 46th load; Kerry Rodacker - driver

- Steve McCormick onsite - hauling brush piles to placement area

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. of Maryville, TN onsite; lime kiln dust (LKD); MINTEK; 47th load; Randy Newsome - driver

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 46th load; 24.39 tons

- Shore Trucking Co., Inc. begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. offsite

- Rogers Cartage Company of Calera, AL onsite; lime kiln dust (LKD); Chem Lime; 48th and 49th loads; Bill Rankin and Courtland Davis- drivers

- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank

- Shore Trucking Co., Inc. completes unloading lime kiln dust (LKD) into the unloading tank; 47th load; 24.39 tons

- Shore Trucking Co., Inc. offsite

- Rogers Cartage Company begins unloading lime kiln dust (LKD) into the unloading tank

- WRScompass suspends solidification for lunch; RAI suspends air monitoring; reading - 0.0 ppm

- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 20th load; Tim Dunlap - driver

- WRScompass breaks for lunch; RAI offsite to hotel

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 48th load; 25.79 tons

- Rogers Cartage Company offsite

- RAI onsite

- Rogers Cartage Company completes unloading lime kiln dust (LKD) into the unloading tank; 49th load; 26.32 tons

- Rogers Cartage Company offsite

- WRScompass collects solidified sludge sample from Cell 6 for cylinders

- Wooten Transports, Inc. completes unloading Type I Portland cement into the unloading tank; 20th load; 26.17 tons

- WRScompass completes hauling brush to the placement area; Steve McCormick offsite

- WRScompass setting up to begin solidification in Cell 8

- Weekly Progress Meeting postponed to Monday, June 14, 2010 due to scheduling conflicts

- WRScompass begins sludge solidification in Cell 8; RAI begins air monitoring; initial reading - 0.1 ppm

- Air monitoring: 1506 - 0.1 ppm; 1515 - 0.0 ppm; 1530 - 0.0 ppm; 1545 - 0.0 ppm; 1600 - 0.0 ppm; 1615 - 0.0 ppm; 1630 - 0.0 ppm; 1645 - 0.0 ppm;

1650 - solidification suspended for the day

- WRScompass collects sludge samples from cell 9, Cell 10, and Cell 11 for moisture content analysis

- Frank Sykes and Billy Robinson offsite

- RAI putting together sludge material samples from Cell 9, Cell 10, and Cell 11 for moisture content analysis for shipment to CTL Group

- WRScompass suspends solidification for the day; RAI suspends air monitoring

- WRScompass shuts down work activities for the day; performing equipment maintenance and site clean up

17:30 - RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

*[Signature]*

CQA Monitor Signature

6/11/10

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 12, 2010

**Construction Day No.:** 41

**Weather:** Clear, sunny, muggy - morning;

Clear, sunny; hot - afternoon; 80° - 100°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: Site clean up                          |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Jeff Habegger, Felix Moran, Tyrone Terry, Juan Ramirez, Javier Morgado

#### SUMMARY OF WORK:

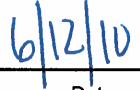
- 6:40 RAI onsite
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 99.5 ppm; 100 ppm iso-butylene
- Site safety meeting: discussed dust control; need to watch wind direction when adding reagents and mixing
- WRScompass begins work activities for the day; solidification and site clean up
- WRScompass setting up to complete solidification in Cell 8
- WRScompass begins sludge solidification in Cell 8; RAI begins air monitoring: initial reading - 0.0 ppm
- Air monitoring: 749 - 0.0 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1200 - 0.0 ppm;
- 1210 - WRScompass suspends solidification for lunch
- WRScompass performing grading work on brush placement area
- RAI calls TRS Environmental to talk to a technician about the MiniRAE 3000 PID; reading is 0.0 w/beeping sound and the "ppm" changing to "Neg"; TRS Technician says humidity can make the PID try to read below the zero cal of 0.0 ppm; RAI checks lamp for dust - no dust; RAI re-calibrates MiniRAE PID; zero cal - 0.0 ppm, span cal - 99.9 ppm; 100 ppm isobutylene
- WRS compass collects solidified sludge sample from Cell 8 for cylinders; WRScompass decides to add more reagents based on slump test
- WRScompass suspends solidification for lunch; RAI suspends air monitoring
- WRScompass adds more reagent (lime kiln dust[LKD] and Type I Portland cement) to Cell 8
- WRScompass collects solidified sludge sample from Cell 8 for cylinders for UCS analysis
- WRScompass collects a sludge material sample from Cell 12 for moisture content analysis
- WRScompass setting up to begin solidification in Cell 12
- WRScompass begins sludge solidification in Cell 12; RAI begins air monitoring: initial reading - 0.1 ppm
- Air monitoring: 1350 - 0.1 ppm; 1400 - 0.1 ppm; 1415 - 0.0 ppm; 1430 - 0.1 ppm; 1445 - 0.1 ppm; 1450 - solidification suspended for the day; final reading - 0.1 ppm
- WRScompass suspends solidification for the day; RAI suspends air monitoring
- WRScompass shuts down work activities for the day; performing equipment fueling
- WRScompass workforce offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form



CQA Monitor Signature



Date



**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 14, 2010

**Construction Day No.:** 42

**Weather:** Clear, sunny, muggy - morning;

Clear, sunny; hot - afternoon; 77° - 98°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation              |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation  |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation         |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                                     |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: Reagent storage pig ready for shipment offsite |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Juan Ramirez      Frank Sykes and Billy Robinson - Roy Worley Septic Tank Services, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS      Bennie Cummings - R&L Carriers

Jake Mattox - EMC Surveying & Mapping, Grenada, MS

Terry Heskett - Minga Electric, Grenada, MS

Larry and Cooper Hayward - Haywards, Grenada, MS

#### SUMMARY OF WORK:

- 6:25 RAI onsite; M. Slovensky and J. Habegger of WRSScompass onsite; WRSScompass workforce onsite: 6:50
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.0 ppm; 100 ppm iso-butylene
- Frank Sykes and Billy Robinson of Roy Worley Septic Tank Service onsite
- Site safety meeting; discussed electric cords; watch for cords to heat up - throw away after cutting both ends off
- WRSScompass begins work activities for the day; solidification and getting reagent storage pig and blower ready for offsite shipment
- WRSScompass setting up to begin solidification in Cell 12
- WRSScompass begins sludge solidification in Cell 12; RAI begins air monitoring; initial reading - irradic; RAI called Scott Blanchard - humidity issues
- RAI re-calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.0 ppm; 100 ppm iso-butylene
- Air monitoring: 752 - 0.1 ppm; 815 - 0.1 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1200 - 0.0 ppm; 1209 - solidification suspended for lunch; reading - 0.0 ppm
- Frank Sykes and Billy Robinson offsite
- RAI gets sludge material sample for Cell 12 and solidified sludge cylinders ready for shipment to CTL Group for moisture content and UCS analysis
- Dwight Stewart onsite - operate Terex excavator
- WRSScompass suspends solidification for lunch; RAI suspends air monitoring; reading - 0.0 ppm
- RAI meets w/Jake Mattox of EMC Surveying & Mapping to discuss locating the piezometers associated with the PRB wall; EMC to e-mail RAI cost estimate
- Terry Heskett onsite - check GFI of office trailer generator; will come back at end of the day to fix
- WRSScompass resumes sludge solidification in Cell 12; RAI resumes air monitoring; initial reading - 0.0 ppm
- Air monitoring: 1258 - 0.0 ppm; 1300 - 0.0 ppm; 1315 - 0.0 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; 1415 - 0.0 ppm; 1430 - 0.0 ppm; 1445 - 0.0 ppm; solidification suspended in cell 12; reading 0.0 ppm
- Terry Heskett offsite
- RAI conducts Weekly Progress Meeting; attendees: M. Slovensky, J. Habegger, and T. Morrow of WRSScompass and E. Goodhall and R. Isaac of Brown and Caldwell
- R&L Carriers onsite/offsite - picked up reagent storage pig blower
- WRSScompass setting up to begin sludge solidification in Cell 11
- T Terry offsite



- Dwight Stewart offsite

- WRScompass begins sludge solidification in Cell 11; RAI begins air monitoring; initial reading - 0.0 ppm

- Air monitoring: 1553 - 0.0 ppm; 1600 - 0.0 ppm; 1615 - 0.0 ppm; 1630 - 0.0 ppm; 1645 - 0.1 ppm; 1700 - 0.0 ppm; 1715 - 0.0 ppm; 1724 - 0.0 ppm - solidification suspended for the day; final reading - 0.0 ppm

- Larry and Cooper Hayward onsite/offsite - deliver stump grinder

- Terry Heskett onsite/offsite - replace GFI on office trailer generator

- WRScompass suspends solidification for the day; RAI suspends air monitoring; reading - 0.0 ppm

- WRScompass shuts down work activities for the day

- WRScompass workforce offsite

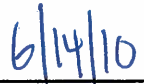
17:45 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form



CQA Monitor Signature



Date

Project: Sludge Lagoon Closure

Date: June 15, 2010

Construction Day No.: 43

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Weather: Clear, sunny, muggy - morning;

Clear, sunny; partly cloudy, hot - afternoon; 74° - 97°

## ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation  |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation  |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation   |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: RR Borrow Area tree clearing; offsite removal of the reagent storage pig; unloading HDPE geomembrane |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Juan Ramirez      Zane Shawver - WRScompass, Indianapolis, IN

Dwight Stewart - S&L Construction, Grenada, MS

Larry and Cooper Hayward - Haywards, Grenada, MS

George, Davis, and Will Small - Haywards, Grenada, MS

Francisco Kilogh - TMC, Des Moines, Iowa

## SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovensky of WRScompass onsite; J. Habegger of WRScompass onsite; 6:40; WRScompass workforce onsite; 6:50
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.5 ppm; 100 ppm iso-butylene
- Dwight Stewart and Larry and Cooper Hayward onsite
- Site safety meeting; discussed heat index; weather pattern set for high temperatures, humidity, and heat index; drink plenty of water and stay hydrated
- WRScompass begins work activities for the day; solidification and tree removal along the RR Borrow Area
- WRScompass begins sludge solidification in Cell 11; RAI begins air monitoring; initial reading - 0.0 ppm
- Air monitoring: 730 - 0.0 ppm; 745 - 0.1 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0 ppm; 1100 - 0.0 ppm; 1115 - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1200 - solidification suspended for lunch; reading - 0.0 ppm
- George, Davis, and Will Small onsite - assist Haywards w/RR Borrow Area tree clearing
- RAI conducts weekly erosion/sediment inspection; no deficiencies or erosion/sediment observed
- WRScompass suspends solidification in Cell 11 and moves to perform solidification in Cell 12
- WRScompass suspends solidification for lunch; RAI suspends air monitoring; reading - 0.0 ppm
- TMC onsite; delivery of 60-mil textured HDPE geomembrane
- WRScompass begins preparations to unload the 60-mil textured HDPE geomembrane
- WRScompass completes unloading the 60-mil textured HDPE geomembrane
- WRScompass resumes sludge solidification in Cell 12; RAI resumes air monitoring; initial reading - 0.0 ppm
- Air monitoring: 1406 - 0.0 ppm; 1415 - 0.0 ppm; 1430 - 0.0 ppm; 1445 - 0.0 ppm - 0.1 ppm; 1500 - 0.0 ppm; 1515 - 0.0 ppm; 1530 - 0.0 ppm; 1545 - 0.0 ppm; 1600 - 0.0 ppm; 1615 - 0.0 ppm; 1630 - 0.0 ppm; 1645 - 0.0 ppm; 1700 - 0.0 ppm; 1703 - solidification suspended in Cell 12 for the day; reading 0.0 ppm
- Josh Kelly of WRScompass onsite; perform safety audit
- RAI checks on tree clearing along the RR Borrow Area alignment - all trees are down; two loads taken out
- T. Terry offsite
- Zane Shawver of WRScompass onsite - deliver vibratory roller for the skid steer and take reagent storage pig offsite
- WRScompass takes reagent storage pig offsite

- Larry and Cooper Hayward offsite

- WRScompass suspends solidification in Cell 12 for the day; RAI suspends air monitoring: reading - 0.0 ppm

- Dwight Stewart offsite

17:45 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☒ CQA Field Forms
- ☒ Other: Air Monitoring Form

*[Handwritten Signature]*

CQA Monitor Signature

*6/15/10*

Date

**Project:** Sludge Lagoon Closure

**Date:** June 16, 2010

**Construction Day No.:** 44

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny, muggy - morning;

Clear, sunny to partly cloudy, hot - afternoon; 73° - 100°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation  |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation  |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                                   |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: RR Borrow Area tree clearing; unloading geocomposite; unloading reagents |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Javier Morgado, Josh Kelly Frank Sykes and James Selby - Roy Worley Septic tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS John Kimbrough - Rogers Cartage Company, Calera, AL

Larry and Cooper Hayward - Haywards, Grenada, MS Andy Guidry and Wesley Carter - Elbac, Inc., Stephens, AR

George, Davis, and Will Small - Haywards, Grenada, MS

Eric Adams - Wooten Transports, Inc., Memphis, TN

#### SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovensky and J. Habegger of WRSScompass onsite; J. Kelly and J. Morgado of WRSScompass onsite: 6:43; T. Terry of WRSScompass onsite: 6:50
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.4 ppm; 100 ppm iso-butylene
- Dwight Stewart onsite
- Frank Sykes and James Selby onsite
- Larry Hayward and Cooper Hayward onsite
- George, Davis, and Will Small onsite - assist Haywards w/RR Borrow Area tree clearing
- Site safety meeting: discussed Incident Reporting; if you need to leave the site - report to M. Slovensky; cards are available with contact information; WRSScompass is monitoring the air in the cab of the excavator performing the solidification; Josh Kelly of WRSScompass is onsite performing a Safety Audit - feel free to ask Josh questions
- WRSScompass begins work activities for the day; solidification, unloading Type I Portland cement and lime kiln dust (LKD), unload geocomposite; and tree removal along the RR Borrow Area alignment
- WRSScompass setting up to perform sludge solidification in Cell 11
- WRSScompass begins sludge solidification in Cell 11; RAI begins air monitoring: initial reading - 0.0 ppm
- Air monitoring: 740 - 0.0 ppm; 745 - 0.0 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.0 ppm; 1030 - 0.0 ppm; 1045 - 0.0 ppm; 1052 - suspends solidification in Cell 11; reading - 0.0 ppm; 1130 - 0.0 ppm; 1145 - 0.0 ppm; 1154 - 0.0 ppm; solidification suspended for lunch: reading - 0.0 ppm
- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc., 21st load; Eric Adams - driver
- Wooten Transports, Inc. begins unloading Type I Portland cement into unloading tank
- Wooten Transports, Inc. completes unloading Type I Portland cement; 21st load; 26.07 tons
- Wooten Transports, Inc. offsite
- WRSScompass suspends solidification in Cell 11; checks slump - decides to add more lime kiln dust (LKD)
- WRSScompass resumes solidification in Cell 11; adding more lime kiln dust (LKD); air monitoring - 0.0 ppm
- WRSScompass suspends solidification to check slump - decides to add more lime kiln dust (LKD) after lunch; solidification suspended for lunch; reading 0.0 ppm
- Rogers Cartage Company of Calera, AL onsite; lime kiln dust (LKD); Chem Lime; 50th load; John Kimbrough - driver
- Rogers Cartage Company begins to unload lime kiln dust (LKD) into unloading tank

- Wooten Transports, Inc. of Memphis, TN onsite; Type I Portland cement; Holcim, Inc.; 22nd load; Eric Adams - driver

- WRScompass resumes solidification in Cell 11 - adding more lime kiln dust (LKD); RAI resumes air monitoring: initial reading - 0.0 ppm

- Rogers Cartage Company completes unloading lime kiln dust (LKD); 50th load; 26.24 tons

- Rogers Cartage Company offsite

- Elbac, Inc. onsite; delivery of geocomposite; two trucks

- Wooten Transports, Inc. begins unloading Type I Portland cement into unloading tank

- WRScompass begins preparations to unload the geocomposite

- WRScompass begins unloading the geocomposite

- WRScompass completes unloading the geocomposite

- Wooten Transports, Inc. completes unloading Type I Portland cement; 22nd load; 26.15 tons

- Wooten Transports, Inc. offsite

- WRScompass collects solidified sludge sample from Cell 11 to make cylinders for USC analysis

- WRScompass begins setting up to perform sludge solidification in Cell 8/Cell 9

- WRScompass resumes sludge solidification in Cell 8/Cell 9; RAI resumes air monitoring: initial reading - 0.0 ppm

- Air monitoring: 1300 - 0.0 ppm; 1315 - 0.1 ppm; 1330 - 0.0 ppm; 1345 - 0.0 ppm; 1400 - 0.0 ppm; 1445 - 0.0 ppm; 1500 - 0.0 ppm; 1515 - 0.0 ppm; 1530 - 0.0 ppm; 1545 - 0.0 ppm; 1600 - 0.0 ppm; 1615 - 0.0 ppm; 1630 - 0.0 ppm; 1645 - 0.0 ppm; 1650 - solidification suspended in Cell 8/Cell 9 for the day; reading 0.0 ppm

- Frank Sykes and James Selby offsite

- T. Terry offsite; Frank and Cooper Hayward offsite

- WRScompass suspends solidification in Cell 8/Cell 9 for the day; RAI suspends air monitoring: reading - 0.0 ppm

- Dwight Stewart offsite

- J. Morgado offsite

17:45 - RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☒ CQA Field Forms
- ☒ Other: Air Monitoring Form



CQA Monitor Signature

6/16/10

Date

**Project:** Sludge Lagoon Closure

**Date:** June 17, 2010

**Construction Day No.:** 45

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny, humid - morning;

Clear, sunny to partly cloudy, hot - afternoon; 77° - 99°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation                |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation  |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation           |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                                       |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: RR Borrow Area tree clearing; unloading reagents |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Javier Morgado, Josh Kelly

Larry and Cooper Hayward - Haywards, Grenada, MS

George, Davis, and Will Small - Haywards, Grenada, MS

Bill Rankin - Rogers Cartage Company, Calera, AL

WC Melton - Grenada, MS

#### SUMMARY OF WORK:

- 6:40 RAI onsite; M. Slovensky, J. Habegger, and Josh Kelly of WRSScompass onsite; WRSScompass workforce onsite: 6:50; WC Melton onsite: 6:20 - stump grinding
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.3 ppm; 100 ppm iso-butylene
- Rogers Cartage Company of Calera, AL onsite; lime kiln dust (LKD); Chem Lime; 51st load; Bill Rankin - driver
- Larry Hayward and Cooper Hayward onsite; George, Cotton, and Charles Small onsite - assist Haywards
- Site safety meeting: discussed Three-point contact when unloading trucks; do not jump from the bed of semi-trailers - use a step ladder
- WRSScompass begins work activities for the day; solidification, unloading lime kiln dust (LKD), and tree removal along the RR Borrow Area
- WRSScompass begins sludge solidification to complete Cell 9 and begin in Cell 10; RAI begins air monitoring: initial reading - 0.0 ppm
- Air monitoring: 720 - 0.0 ppm; 730 - 0.0 ppm; 745 - 0.0 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm; 900 - 0.0 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.1 ppm; 1015 - 0.0 ppm; 1030 - 0.1 ppm; 1045 - 0.1 ppm; 1100 - 0.1 ppm; 1115 - 0.1 ppm; 1124 - suspended solidification to collect samples and lunch: reading - 0.1 ppm
- Rogers Cartage Company begins to unload lime kiln dust (LKD) into unloading tank
- Rogers Cartage Company completes unloading lime kiln dust (LKD); 51st load; 26.73 tons
- Rogers Cartage Company offsite
- George, Cotton, and Charles Small offsite
- WRSScompass suspends solidification in Cell 9/Cell 10; checks slump - Cell 9 - 7-inch slump - will take sample for cylinders; Cell 10 - 6.5-inch slump - will take sample for cylinders
- WRSScompass begins setting up to complete sludge solidification in Cell 12 and overlap in Cell 11
- WRSScompass breaks for lunch
- WRSScompass resumes solidification in Cell 12 and overlap into Cell 11; RAI resumes air monitoring - 0.1 ppm
- Air monitoring: 1238 - 0.1 ppm; 1245 - 0.1 ppm; 1300 - 0.1 ppm; 1315 - 0.1 ppm; 1330 - 0.1 ppm; 1345 - 0.1 ppm; 1400 - 0.1 ppm; 1415 - 0.1 ppm; 1430 - 0.1 ppm; 1445 - 0.1 ppm; 1500 - 0.1 ppm; 1515 - 0.1 ppm; 1530 - 0.1 ppm; 1545 - 0.1 ppm; 1600 - 0.1 ppm; solidification suspended in Cell 3/Cell 9 for the day; reading 0.0 ppm
- RAI gets geosynthetics samples, 60-mil textured geomembrane and geocomposite, ready for shipment to Precision Geosynthetics Laboratories for QA analysis
- WRSScompass begins to use the second excavator to solidify the overlap between Cell 10 and Cell 11
- WC Melton offsite



- WRScompass suspends solidification in Cell 12/Cell 11 for the day

- WRScompass suspends solidification in Cell 12/Cell 11; checks slump - Cell 12 - 4-inch slump - will take sample for cylinders; Cell 11 - 4.5-inch slump - will take sample for cylinders

- WRScompass suspends solidification in Cell 10 for the day; RAI suspends air monitoring: reading - 0.1 ppm

- WRScompass shuts down work activities for the day; WRScompass workforce offsite

17:45 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form



CQA Monitor Signature



Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 18, 2010

**Construction Day No.:** 46

**Weather:** Clear, sunny, humid - morning;

Turning cloudy, rain, clearing, hot - afternoon; 75° - 104°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation                                |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation  |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                           |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: RR Borrow Area tree clearing, brush grinding, and stump grinding |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Tyrone Terry, Javier Morgado

Larry and Cooper Hayward - Haywards, Grenada, MS

Charles and Cotton Snell - WC Melton, Grenada, MS

Doug Davis - Scotts Petroleum, Grenada, MS

#### SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovensky of WRSScompass onsite; WRSScompass workforce onsite: 6:50
- RAI calibrates MiniRAE 3000; zero cal - 0.0 ppm, span cal - 100.4 ppm; 100 ppm iso-butylene
- Charles and Cotton Snell onsite; WC Melton - stump grinding along RR Borrow Area alignment
- Larry Hayward and Cooper Hayward onsite
- Site safety meeting: discussed fire extinguishers; located at appropriate places throughout jobsite; how to use: pull, point, place - shoot at the base of the fire and sweep back and forth
- WRSScompass begins work activities for the day; solidification and tree removal along the RR Borrow Area including brush and stump grinding
- WRSScompass begins setting up to complete solidification in Cell 10
- WRSScompass begins sludge solidification to complete Cell 10; RAI begins air monitoring: initial reading - 0.0 ppm
- Air monitoring: 717 - 0.0 ppm; 730 - 0.0 ppm; 745 - 0.0 ppm; 800 - 0.0 ppm; 815 - 0.0 ppm; 830 - 0.0 ppm; 845 - 0.0 ppm - 0.1 ppm; 900 - 0.0 ppm - 0.1 ppm; 915 - 0.0 ppm; 930 - 0.0 ppm; 945 - 0.0 ppm; 1000 - 0.0 ppm; 1015 - 0.1 ppm; 1030 - 0.1 ppm; 1045 - 0.1 ppm; 1100 - 0.1 ppm; 1115 - 0.1 ppm; 1130 - 0.1 ppm; 1145 - 0.1 ppm; 1200 - 0.1 ppm; 1215 - 0.1 ppm; 1230 - 0.1 ppm; 1245 - 0.1 ppm; 1300 - 0.1 ppm; 1315 - 0.1 ppm; 1330 - 0.1 ppm; 1345 - 0.1 ppm; 1400 - 0.1 ppm; 1415 - 0.1 ppm; 1430 - 0.1 ppm; 1445 - 0.1 ppm; 1500 - 0.1 ppm; 1515 - 0.1 ppm; 1530 - 0.1 ppm; 1545 - 0.1 ppm; 1600 - 0.1 ppm; 1615 - 0.1 ppm; 1630 - 0.1 ppm; 1645 - 0.1 ppm; 1700 - 0.1 ppm; 1715 - 0.0 ppm; 1730 - solidification suspended for the day: reading - 0.1 ppm
- RAI participates in Weekly Workload call
- RAI checks on the stump grinding crew along the RR Borrow Area alignment
- Scotts Petroleum onsite/offsite - deliver diesel fuel
- WRSScompass breaks for lunch
- RAI conducts Weekly Progress Meeting; attendees - Mike Slovensky and Tim Morrow of WRSScompass and Elena Goodhall and Rick Isaac of BC
- Charles and Cotton Snell offsite
- WRSScompass completes solidification in Cell 12/Cell 11
- WRSScompass reworking a "soft" area between Cell 8 and Cell 9
- WRSScompass suspends solidification in Cell 10 for the day; RAI suspends air monitoring: reading - 0.1 ppm
- Frank and Cooper Hayward offsite

- WRScompass shuts down work activities for the day; WRScompass workforce offsite

17:35 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form



CQA Monitor Signature



Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 19, 2010

**Construction Day No.:** 47

**Weather:** Clear, sunny, high scattered clouds - morning;  
77° - 99°

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation                                    |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                           | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: RR Borrow Area stump grinding          |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Tyrone Terry, Javier Morgado

Charles and Cotton Snell - WC Melton, Grenada, MS

WC Melton - WC Melton, Grenada, MS

#### SUMMARY OF WORK:

- 6:00 RAI onsite; M. Slovensky of WRSccompass and WRSccompass workforce onsite
- Charles and Cotton Snell onsite; stump grinding along RR Borrow Area alignment
- RAI calibrates MiniRAE 3000: zero cal - 0.0 ppm, span cal - 100.4 ppm; 100 ppm iso-butylene
- Site safety meeting: discussed heat index: keep hydrated; drink plenty of water
- WRSccompass begins work activities for the day: solidification and and stump grinding along RR Borrow Area alignment
- WRSccompass begins setting up to complete solidification in Cell 11 and the interface between Cell 8 and Cell 9
- WRSccompass begins adding cement to complete Cell 11; RAI begins air monitoring: initial reading - 0.0 ppm
- Air monitoring: 634 - 0.0 ppm; 645 - 0.0 ppm; 700 - 0.0 ppm; 715 - 0.0 ppm; 730 - 0.1 ppm; 745 - 0.1 ppm - 0.2 ppm; 800 - 0.1 ppm; 815 - 0.1 ppm; 830 - 0.1 ppm; 845 - 0.0 ppm; 900 - 0.1 ppm; 915 - 0.01 ppm; 930 - 0.1 ppm; 945 - 0.1 ppm; 1000 - 0.1 ppm; 1015 - 0.1 ppm; 1030 - 0.1 ppm; 1045 - 0.1 ppm; 1100 - 0.1 ppm; 1115 - 0.1 ppm; 1130 - 0.1 ppm; 1142 - 0.1 ppm - solidification suspended for the day; reading 0.1 ppm
- WRSccompass begins solidification to complete the interface between Cell 8 and Cell 9
- WRSccompass completes adding cement to Cell 11
- RAI checks on the stump grinding crew along the RR Borrow Area alignment
- RAI sends ERG an e-mail regarding the "soft" area in Cell 8/Cell 9
- Charles and Cotton Snell and WC Melton offsite
- WRSccompass suspends solidification for the day; RAI suspends air monitoring - 0.1 ppm
- WRSccompass shuts down work activities for the day; WRSccompass workforce offsite
- 12:00 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☒ Other: Air Monitoring Form

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*[Handwritten Signature]*

CQA Monitor Signature

*6/19/16*

Date

**Project:** Sludge Lagoon Closure

**Date:** June 21, 2010

**Construction Day No.:** 48

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny - morning;

Clear, sunny, hot - afternoon; 77° - 98°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |   |  |
|---|--|
| <input type="checkbox"/> Clearing and Grubbing                          | <input type="checkbox"/> Protective/Vegetative Cover Installation                        |
| <input type="checkbox"/> Pumping Lagoon Water                           | <input type="checkbox"/> Vegetation  |
| <input checked="" type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                   |
| <input checked="" type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation                     | <input type="checkbox"/> Other: RR Borrow Area stump grinding; excavator decontamination |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Javier Morgado

James Selby - Roy Worley Septic Tank Service, Grenada, MS

Charles and Cotton Snell - WC Melton, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Larry and Cooper Hayward - Haywards, Grenada, MS

Jake Mattox and Chris Turner - EMC Surveying & Mapping, Grenada, MS

#### SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovensky of WRSScompass, Dwight Stewart, and Charles and Cotton Snell onsite
- Charles and Cotton Snell onsite; stump grinding along RR Borrow Area alignment
- RAI, M. Slovensky and D. Stewart walk the area of the lagoon w/"soft" conditions on Saturday, June 19, 2010 - area hardened over the weekend; one other small "soft" area identified - WRSScompass will rework w/lime kiln dust (LKD) and Type I Portland cement; earthwork to grade lagoon berms will begin along the north side and progress south
- WRSScompass workforce onsite - T. Terry and J. Morgado
- Site safety meeting: discussed heat index: keep hydrated; drink plenty of water
- WRSScompass begins work activities for the day; solidification of "soft" area, decontamination of the excavators, grading berms, and and stump grinding along RR Borrow Area alignment
- WRSScompass "tracking" the excavator over the "soft" area reworked on Saturday, June 19, 2010; are is hard and supports the weight of the machine
- WRSScompass begins "dry deconning" the Terex excavator by scraping, shoveling, and sweeping off solidified sludge
- James Selby onsite
- WRSScompass reworking "soft" area by adding lime kiln dust (LKD) and Type I Portland cement; reworking completed
- Larry and Cooper Hayward onsite - demobilize tree cutting equipment
- EMC Surveying & Mapping onsite - survey top of solidified sludge
- James Selby offsite
- EMC Surveying & Mapping completes survey of the top of the solidified sludge; offsite
- WRSScompass begins to grade the lagoon berm at the NE corner working west across the north berm to cover the solidified sludge material
- WRSScompass begins "wet deconning" the Terex excavator
- Jeff Habegger onsite
- RAI gets solidified sludge cylinders for Cell 9, Cell 10, Cell 11, and Cell 12 ready for shipment to CTL Group for UCS analysis
- WRSScompass breaks for lunch
- WRSScompass fueling excavators and resumes grading work
- Charles and Cotton Snell offsite - repair the stump grinder
- WRSScompass continuing to grade the north berm of the lagoon



- Frank and Cooper Hayward offsite - demobilizing tub grinder

- WRScompass shuts down work activities for the day; WRScompass workforce offsite

- RAI performs the weekly erosion/sediment inspection: silt fence intact and no observed sediment outside of the silt fence

- Dwight Stewart suspends berm grading for the day

17:20 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:



CQA Monitor Signature



Date

**Project:** Sludge Lagoon Closure

**Date:** June 22, 2010

**Construction Day No.:** 49

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny - morning;

Sunny, clear to partly cloudy, hot - afternoon; 77° - 97°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                                      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                                 |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other: RR Borrow Area stump grinding; excavator and crane mat decontamination |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovinsky, Jeff Habegger, Tyrene Terry, Javier Morgado

Frank Sykes and Ricky Alldread - Roy Worley Septic Tank Service, Grenada, MS

Charles and Cotton Snell - WC Melton, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

WC Melton - WC Melton, Grenada, MS

H&E Equipment Services - Jackson, MS

#### SUMMARY OF WORK:

- 6:30 RAI onsite; M. Slovinsky and J. Habegger of WRSccompass onsite; WRSccompass workforce onsite: 6:40
- Charles and Cotton Snell and WC Melton onsite; stump grinding along RR Borrow Area alignment
- Dwight Stewart of S&L Construction onsite
- Site safety meeting: discussed Evacuation Plan; meet at the office if you hear the signal "May Day" over the two-way radio; a roll call will be performed; an "all safe" signal will be given when conditions are such that returning to work is safe; WRSccompass will have a practice evacuation drill at some point during the project
- WRSccompass begins work activities for the day; complete decontamination of the Terex excavator and begin decontamination of the Caterpillar excavator and crane mats, grading berms, and stump grinding along the RR Borrow Area alignment
- Frank Sykes onsite
- RAI checks on stump grinding along the RR Borrow Area alignment
- WRSccompass decontaminating crane mats
- H&E Equipment Services onsite/offsite - deliver Dynapac rubber-tire vibratory sheepsfoot compactor
- WRSccompass continuing to grade the lagoon berm
- WRSccompass begins to compact the graded lagoon berm soil material using the Dynapac compactor
- WRSccompass completes decontamination of the Terex excavator
- WRSccompass breaks for lunch
- WRSccompass resumes lagoon berm excavating and grading work and begins decontamination of the Caterpillar excavator
- Ricky Alldread offsite
- RAI checks on stump grinding along the RR Borrow Area alignment
- WRSccompass shuts down work activities for the day; WRSccompass workforce offsite
- 16:00 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

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\_\_\_\_\_

*[Handwritten Signature]*

CQA Monitor Signature

6/24/10

Date

**Project:** Sludge Lagoon Closure

**Date:** June 23, 2010

**Construction Day No.:** 50

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny, becoming cloudy - morning;

Partly cloudy to sunny, hot - afternoon; 75° - 95°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- ☐ Clearing and Grubbing
- ☐ Pumping Lagoon Water
- ☐ Sludge Solidification/Stabilization
- ☒ Subbase Construction
- ☐ Geosynthetics Installation

- ☐ Protective/Vegetative Cover Installation
- ☐ Vegetation
- ☐ Perimeter Fence, Gate, and Signs Installation
- ☐ CQA Field Testing
- ☐ Other: RR Borrow Area stump grinding; excavator decontamination

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, Jeff Habegger, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Charles and Cotton Snell - WC Melton, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Zane Shawver - WRScompass, Indianapolis, IN

WC Melton - WC Melton, Grenada, MS

Jimmy Barham - Barham Contracting, Grenada, MS

#### SUMMARY OF WORK:

- 6:30 RAI onsite; M. Slovensky and J. Habegger of WRScompass onsite; WRScompass workforce onsite: 6:50
- Charles and Cotton Snell and WC Melton onsite; stump grinding along RR Borrow Area alignment
- Dwight Stewart of S&L Construction onsite
- Frank Sykes onsite
- Site safety meeting: discussed Housekeeping; need to make sure all tools are put away at the end of the day in the proper place; put trash in receptacles - do not put food in trash can outside of the office trailer; WRScompass conducted an Evacuation Drill - all site personnel present at roll call; all clear given for going back to work
- WRScompass begins work activities for the day; complete decontamination of the Caterpillar excavator; ship crane mats offsite; after cylinder breaks - grade lagoon berm adjacent to Cell 10, Cell 11, and Cell 12, and stump grinding along the RR Borrow Area alignment
- Charles and Cotton Snell and WC Melton offsite; stump grinder broken down
- WRScompass decontaminating Caterpillar excavator
- WRScompass begins grading lagoon berm - west side and south side of Cell 12, Cell 11, and Cell 10
- WRScompass continuing to grade the lagoon berm and decontaminating the Caterpillar excavator
- RAI offsite to hotel to pickup a Fed Ex delivery
- Jeff Habegger of WRScompass offsite
- RAI onsite
- RAI checks on lagoon berm grading and machine decontamination
- Charles and Cotton Snell onsite - stump grinding along RR Borrow Area alignment
- WRScompass breaks for lunch
- WRScompass resumes lagoon berm excavating and grading work and decontaminating the Caterpillar excavator
- WC Melton onsite
- RAI checks on stump grinding along the RR Borrow Area alignment
- WRScompass begins compacting the lagoon berm soil material
- Don Williams onsite/offsite - taking pictures of the lagoon berm grading
- WC Melton offsite

- RAI checks on lagoon berm excavation and grading
- Zane Shawver onsite - pick up crane mats
- Frank Sykes offsite
- WRScompass loading crane mats on flatbed trailer
- J. Morgado offsite
- Zane Shawver offsite
- Charles and Cotton Snell offsite
- WRScompass shuts down work activities for the day; WRScompass workforce offsite
- Dwight Stewart offsite
- 18:40 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

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CQA Monitor Signature

*6/23/10*

Date

**Project:** Sludge Lagoon Closure

**Date:** June 24, 2010

**Construction Day No.:** 51

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear, sunny, becoming cloudy - morning;

Partly cloudy to sunny, hot - afternoon; 75° - 101°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                        |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                   |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other: RR Borrow Area stump grinding; excavator decontamination |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Charles and Cotton Snell - WC Melton, Grenada, MS

Roy Worley - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Jake Mattox - EMC Surveying & Mapping, Grenada, MS

WC Melton - WC Melton, Grenada, MS

Larry Hayward - Haywards, Grenada, MS

#### SUMMARY OF WORK:

- 6:40 RAI onsite; M. Slovensky of WRSccompass onsite; WRSccompass workforce onsite: 6:50
- Charles and Cotton Snell onsite; stump grinding along RR Borrow Area alignment
- Frank Sykes onsite
- Site safety meeting; discussed Site Electrical Plan; the only overhead powerlines are outside of the site along Highway 332; use a spotter when unloading/loading equipment
- WRSccompass begins work activities for the day; complete decontamination of the Caterpillar excavator; after cylinder breaks - grade lagoon berm adjacent to Cell 9; stump grinding along the RR Borrow Area alignment
- RAI checks soil material graded from the lagoon berm on Thursday and takes photographs
- WRSccompass decontaminating Caterpillar excavator
- WRSccompass begins excavating lagoon berm - south side of Cell 11 and Cell 10
- WRSccompass takes water tanker to obtain more water
- RAI offsite to hotel to send e-mails and drop off Fed Ex package
- WRSccompass suspends excavating soil material from the lagoon berm - waiting on UCS test results for Cell 10 and Cell 9
- WC Melton onsite
- RAI onsite; call from CTL Group: UCS test results - Cell 10: 15 psi and Cell 9: 13 psi @ 7-days
- RAI checks on stump grinding along the RR Borrow Area alignment
- WC Melton offsite
- WRSccompass continuing to decontaminate the Caterpillar excavator
- Stump grinding along the RR Borrow Area alignment completed
- Charles and Cotton Snell offsite
- WRSccompass completes decontamination of the Caterpillar excavator
- WRSccompass breaks for lunch
- Dwight Stewart onsite
- Larry Hayward onsite/offsite
- WRSccompass resumes lagoon berm excavating and grading work and getting reagent unloading tanks ready for offsite shipment



- WRScompass continuing to excavate and grade lagoon berm soil material and begins compacting the lagoon berm soil material
- WRScompass using the laser level to check grades and make appropriate adjustments
- Roy Worley onsite
- WRScompass loads reagent unloading tank on trailer for offsite shipment
- Roy Worley offsite
- M. Slovensky offsite - meet w/EMC Surveying & Mapping
- M. Slovensky onsite
- Frank Sykes offsite
- Jake Mattox onsite - provided survey data and drawings for top of solidified sludge
- WRScompass continuing to excavate, grade, and compact the lagoon berm soil material
- WRScompass shuts down work activities for the day; WRScompass workforce offsite
- Dwight Stewart offsite
- 18:15 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

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*RUAO*

CQA Monitor Signature

6/24/10

Date

**Project:** Sludge Lagoon Closure

**Date:** June 25, 2010

**Construction Day No.:** 52

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Partly cloudy - morning;

Partly cloudy to mostly cloudy, hot - afternoon; 80° - 94°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Mike Slovensky, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Chris Williams and James Selby - Roy Worley Septic Tank Service, Grenada, MS

Justin Timbs- S&L Construction, Grenada, MS

#### SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovensky of WRScopass onsite; WRScopass workforce onsite: 6:45
- Dwight Stewart and Justin Timbs onsite
- Frank Sykes onsite
- Site safety meeting: discussed Equipment Backup; make sure backup alarms are working; ground men need to pay attention the backup alarms; operators also need to watch
- WRScopass begins work activities for the day; after cylinder breaks - grade lagoon berm adjacent to Cell 8; excavate, grade, and compact lagoon berm soil material; set grades
- WRScopass setting grade stakes
- Chris Williams and James Selby onsite/offsite - pick up reagent storage tank for offsite removal
- WRScopass continuing to excavate, grade, and compact the lagoon berm soil material
- WRScopass completes setting grade stakes
- RAI onsite; call from CTL Group: UCS test results - Cell 8: 11 psi @ 13-days; will test a Cell 8 cylinder on Monday, June 28, 2010
- WRScopass continuing to excavate, grade, and compact the lagoon berm soil material
- WRScopass breaks for lunch
- WRScopass resumes excavating, grading, and compacting the lagoon berm soil material
- RAI collects additional samples of geotextile from the geocomposite rolls to send to Precision Geosynthetics Laboratories for analysis
- RAI conducts Weekly Progress Meeting; attendees: Mike Slovensky and Jeff Habegger of WRScopass and Rick Isaac of Brown and Caldwell
- Frank Sykes offsite
- Dwight Stewart and Justin Timbs offsite
- WRScopass shuts down work activities for the day; WRScopass workforce offsite
- 16:00- RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

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*RUCQ*

CQA Monitor Signature

6/25/10

Date

Project: Sludge Lagoon Closure

Date: June 28, 2010

Construction Day No.: 53

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Weather: Clear, sunny - morning;

Clear to partly cloudy; hot; thunder/lightning;

- afternoon; 75° - 94°

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Mike Slovensky, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&amp;L Construction, Grenada, MS

Roy Worley - Roy Worley Septic Tank Service, Grenada, MS

Justin Timbs - S&amp;L Construction, Grenada, MS

Elton Chatham - H&amp;E Equipment Services, Jackson, MS

Jake Mattox and RC Hutchinson - EMC Surveying &amp; Mapping, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Shane Brakely - McCoy's Tire Repair, Grenada, MS

## SUMMARY OF WORK:

- 6:30 RAI onsite; M. Slovensky of WRScopass onsite; WRScopass workforce onsite: 6:50
- Roy Worley onsite
- Dwight Stewart and Justin Timbs onsite
- Site safety meeting: discussed Ground Personnel; ground personnel need to make eye contact with the equipment operators; ground personnel should always wear vests
- WRScopass begins work activities for the day; excavate, grade, spread, and compact lagoon berm soil material; after cylinder break - grade lagoon berm adjacent to Cell 8;
- EMC Surveying & Mapping will set outer limits of solidified sludge material, set grades, and establish the 25-foot grid used to monitor thickness of the clay material
- WRScopass excavating excess lagoon berm soil material along the former location of the north berm
- EMC Surveying & Mapping onsite; Jake Mattox and RC Hutchinson; staking solidified sludge perimeter and setting grades
- Shane Brakely of McCoy's Tire Repair onsite/offsite - repair tire on Dynapac compactor
- Frank Sykes onsite
- RAI, WRScopass, and EMC Surveying & Mapping adjusting perimeter stakes and setting grades for 5 percent slope
- EMC Surveying & Mapping offsite
- WRScopass grading lagoon berm fill material to set 5 percent slope around perimeter
- RAI telephone call from CTL Group: UCS test results - Cell 8: 17 psi @ 16-days; RAI gives WRScopass go ahead to cover Cell 8
- WRScopass excavating, grading, spreading, and compacting the lagoon berm soil material adjacent to Cell 8
- RAI conducts weekly erosion/sediment inspection; silt fence intact; no erosion or sediment outside of the silt fence
- RAI putting together geotextile component samples of the geocomposite to send to Precision Geosynthetic Laboratories for analysis
- H&E Equipment Services onsite - service Caterpillar PC300 LC excavator; Elton Chatham
- WRScopass breaks for lunch
- WRScopass resumes excavating, grading, spreading, and compacting the lagoon berm soil material
- H&E Equipment Services completes servicing the Caterpillar PC300 LC excavator
- H&E Equipment Services offsite
- Armstead Townes onsite/offsite - discuss clay material delivery schedule; definite for Thursday, July 1, 2010 and Townes can work on Saturday, July 3, 2010
- RAI reviews QA data from Precision Geosynthetic Laboratories for the geonet component of the geocomposite - QA results are passing

- WRScompass continuing to excavate, grade, spread, and compact the lagoon berm soil material

- RAI and WRScompass recheck the grades to verify 5 percent slope; decision to adjust some grades

- Frank Sykes offsite

- WRScompass continuing to excavate, grade, spread, and compact the lagoon berm soil material

- WRScompass shuts down work activities for the day; thunder and lightning

- WRScompass workforce offsite; Dwight Stewart and Justin Timbs offsite

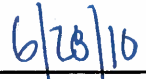
17:45- RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_



CQA Monitor Signature



Date

Project: Sludge Lagoon Closure

Date: June 29, 2010

Construction Day No.: 54

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Weather: Partly cloudy - morning;

Mostly cloudy, hot- afternoon; 76° - 97°

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                            |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation                       |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing   |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Final grubbing along the RR Borrow Area alignment |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Mike Slovensky, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&amp;L Construction, Grenada, MS

Justin Timbs- S&amp;L Construction, Grenada, MS

## SUMMARY OF WORK:

- 6:45 RAI onsite; M. Slovensky of WRScopass onsite; WRScopass workforce onsite: 6:50
- Frank Sykes onsite
- Dwight Stewart and Justin Timbs onsite
- Site safety meeting: discussed Lightning; take precautions when lightning is occurring; leave track-mounted equipment; meet in the office trailer; wait a minimum of 30 minutes following last lightning strike before resuming work
- WRScopass begins work activities for the day; excavate, grade, spread, and compact lagoon berm soil material to final grades; check grades; use water truck, as necessary;
- WRScopass checking the grades and making adjustment where appropriate
- WRScopass continuing to excavate, grade, spread, and compact the lagoon berm soil material
- WRScopass completes checking the grades
- WRScopass continuing to excavate, grade, spread, and compact the lagoon berm soil material
- WRScopass breaks for lunch
- WRScopass resumes excavating, grading, spreading, and compacting the lagoon berm soil material
- WRScopass begins final grubbing of the RR Borrow Area alignment
- RAI checks on the final grubbing of the RR Borrow Area alignment
- WRScopass performing finished grading and compacting of the clay material subbase soil
- WRScopass completes rough grading and installation of the clay material subbase
- Frank Sykes offsite
- WRScopass continuing to final grub the RR Borrow Area alignment
- WRScopass shuts down grading activities for the day
- T. Terry, Dwight Stewart and Justin Timbs offsite
- WRScopass shuts down work activities for the day
- J. Morgado offsite
- 17:45- RAI off-site



**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

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*WUGQ*

CQA Monitor Signature

*6/29/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** June 30, 2010

**Construction Day No.:** 55

**Weather:** Overcast to clearing - morning;

Clear to partly cloudy, hot- afternoon; 77° - 96°

**ITEMS WORKD ON:**

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation   |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation  |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Final grubbing along the RR Borrow Area alignment; field surveying |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSccompass: Mike Slovensky, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

Randy May and Randy Ladd - Crowder Engineering & Surveying, Inc., Ackerman, MS

**SUMMARY OF WORK:**

- 6:30 RAI onsite; M. Slovensky of WRSccompass onsite; WRSccompass workforce onsite: 6:45

- Site safety meeting: discussed Dumping Trucks; spot where the trucks are to dump - half on the pile/half off the pile; keep the bed level, stay back when dumping, no trucks drive onsite at any time with bed in the air; watch for signs of tipping; trucks drive slow and no dust; no mud tracked out on Highway 332

- Frank Sykes onsite/offsite - come back if putting down clay material later in the day

- WRSccompass begins work activities for the day; resume final grubbing of RR Borrow Area alignment; field survey to check grades and set 25-foot grid; general site clean up; put down clay material following field survey work

- RAI checks on the final grubbing of the RR Borrow Area alignment

- Dwight Stewart onsite/offsite - will come back following completion of field survey work

- Randy May and Randy Ladd onsite - field survey for clay material placement - 25-foot grid

- RAI checks on survey crew

- RAI checks on the final grubbing of the RR Borrow Area alignment

- WRSccompass breaks for lunch

- Frank Sykes onsite

- CES continuing to layout and locate the 25-foot grid

- WRSccompass begins setting grade stakes at select grid points

- CES continuing to layout and locate the 25-foot grid

- WRSccompass shuts down work activities for the day

- WRSccompass workforce and Frank Sykes offsite

- RAI reviews geotextile product data submittal for GSE NW16 and Carthage Mills FX-160HS; returned as "No Exceptions Taken"

- CES completes setting and locating the 25-foot grid; CES offsite

17:00- RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

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*[Handwritten Signature]*

CQA Monitor Signature

*6/30/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** July 1, 2010

**Construction Day No.:** 56

**Weather:** Partly cloudy - morning;

Mostly sunny, hot- afternoon; 74° - 95°

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input checked="" type="checkbox"/> CQA Field Testing                  |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSCompass: Mike Slovensky, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

David Thompson - Thompson Repair, Charleston, MS

Luther Owens - Willis Engineering, Inc., Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Adam Beck - Wreckers, Grenada, MS

#### SUMMARY OF WORK:

- 6:15 RAI onsite; M. Slovensky of WRSCompass onsite; WRSCompass workforce and Frank Sykes onsite: 6:25
- Dwight Stewart onsite
- Site safety meeting: discussed Dumping Trucks; stay back from the trucks when they are dumping - tipping issues; everyone watch out for each other
- WRSCompass begins work activities for the day; moisture condition the clay material subbase; spread, grade, and compact clay material
- Armstead Townes onsite/offsite
- First truck of clay material onsite
- WRSCompass spreading and grading clay material
- WRSCompass continuing to spread, grade, and compact clay material
- Luther Owens onsite - perform compaction tests on clay material Lift 1: L1-1: 96.6; L1-2: 95.8
- Luther Owens offsite
- David Thompson onsite/offsite - repairs to John Deere dozer
- WRSCompass breaks for lunch
- WRSCompass resumes spreading, grading, and compacting clay material
- WRSCompass continuing to spread, grade, and compact clay material
- Luther Owens onsite - perform compaction tests on clay material Lift 1: L1-3: 102.0; L1-4: 95.0; L1-5: 95.3; L1-6: 99.6
- Luther Owens offsite
- Armstead Townes onsite/offsite
- WRSCompass continuing to spread, grade, and compact clay material
- Adam Beck onsite/offsite - move Komatsu track-mounted excavator to Armstead Townes clay pit
- WRSCompass continuing to spread, grade, and compact clay material
- Last clay material truck offsite - 66 loads; 1,320 yds of clay material
- WRSCompass shuts down work activities for the day
- WRSCompass workforce and Frank Sykes offsite
- Dwight Stewart offsite

**ATTACHMENTS:**

- ☒ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Date: July 2, 2010

Construction Day No.: 57

Project No: 138466

Location: Grenada, Mississippi

Weather: Partly cloudy - morning;

Mostly sunny, hot- afternoon; 74° - 96°

BC Personnel: R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input checked="" type="checkbox"/> CQA Field Testing                  |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Mike Slovensky, J. Habegger, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Luther Owens - Willis Engineering, Inc., Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

#### SUMMARY OF WORK:

- 6:30 RAI onsite; M. Slovensky and J. Habegger of WRScompass onsite; WRScompass workforce and Frank Sykes onsite: 6:25
- Dwight Stewart onsite
- Site safety meeting: discussed Insect bites - watch for insects; don't bother and stir up
- WRScompass begins work activities for the day; moisture condition the clay material subbase; place, spread, grade, and compact clay material
- Armstead Townes onsite/offsite
- First truck of clay material onsite
- WRScompass checking weight and volume of clay material
- WRScompass continuing to spread, grade, and compact clay material
- Armstead Townes onsite/offsite - observing trucks, drivers, and dumping
- WRScompass continuing to spread, grade, and compact clay material
- WRScompass breaks for lunch
- Luther Owens onsite - perform compaction tests on clay material Lift 1: L1-7: 99.2; L1-8: 96.3; L2-1: 99.3; L2-2: 96.9; L2-3: 99.0; L2-4: 96.1; L2-5: 98.3; L2-6: 95.2
- WRScompass resumes spreading, grading, and compacting clay material
- Luther Owens offsite
- WRScompass continuing to spread, grade, and compact clay material
- RAI conducts Weekly Progress Meeting; Attendees: Jeff Habegger of WRScompass and Elena Goodhail and Rick Isaac of Brown and Caldwell
- WRScompass continuing to spread, grade, and compact clay material
- Luther Owens onsite - perform compaction tests on clay material Lift 1: L2-7: 96.9; L2-8: 98.9; L2-9: 96.1; L3-1: 98.2
- Luther Owens offsite
- Last clay material truck offsite - 158 loads; 3,160 yds of clay material
- WRScompass shuts down work activities for the day
- WRScompass workforce and Frank Sykes offsite
- Dwight Stewart offsite
- 18:30- RAI off-site



**ATTACHMENTS:**

- ☒ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*RUAQ*

CQA Monitor Signature

*7/2/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** July 3, 2010

**Construction Day No.:** 58

**Weather:** Clear, sunny, breezy - morning;

Mostly sunny, hot- afternoon; 73° - 97°

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScompass: Mike Slovinsky, J. Habegger, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

**SUMMARY OF WORK:**

- 6:30 RAI onsite; M. Slovinsky and J. Habegger of WRScompass onsite; WRScompass workforce and Frank Sykes onsite: 6:30
- Dwight Stewart onsite
- Site safety meeting: discussed Cell Phones; no cell phone use by truck drivers while onsite; too much traffic based on the number of trucks entering and leaving the site; WRScompass personnel have not been using cell phones while on the site
- First truck of clay material onsite
- WRScompass placing, spreading, grading, and compacting clay material for Lift 3 and Lift 2
- RAI offsite to clay material borrow area; take photographs; equipment - Caterpillar D5C dozer, Caterpillar 320 track-mounted hydraulic excavator, Komatsu PC300LC track-mounted hydraulic excavator (lease from WRScompass), and homemade water truck
- WRScompass continuing to place, spread, grade, and compact clay material
- WRScompass breaks for lunch
- WRScompass resumes spreading, grading, and compacting clay material
- WRScompass continuing to spread, grade, and compact clay material
- Armstead Townes onsite/offsite - check on trucks/dumping; going to run until 1400 or when truck total for the day reaches 100, whichever occurs first
- Last clay material truck offsite - 100 loads; 2,000 yds of clay material
- WRScompass shuts down work activities for the day
- WRScompass workforce and Frank Sykes offsite
- Dwight Stewart offsite
- 14:40- RAI off-site

**ATTACHMENTS:**

- ☒ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

**Project:** Sludge Lagoon Closure

**Date:** July 6, 2010

**Construction Day No.:** 59

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Partly cloudy; humid; hot - morning;

Overcast, rain - afternoon; 75 - 88°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other: Field surveying                        |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, J. Habegger, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

Jake Mattox, Hays Stephens, and Hardy Gross - EMC Surveying & Mapping, Grenada, MS

David Thompson - Thompson Repair Service, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

#### SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovensky and J. Habegger of WRSScompass onsite; WRSScompass workforce and Frank Sykes onsite; 6:30
- Dwight Stewart onsite
- Site safety meeting: discussed Hand Tools; make sure tools are in good working order; check out before using; check handles for cracks
- WRSScompass begins work activities for the day; checking grades on the clay material; watering the fill;
- RAI performs the weekly erosion/sediment control inspection; silt fence intact and no sediment observed outside of the silt fence
- EMC Surveying & Mapping onsite - check thickness of clay material placement based on 25-foot grid
- Jake Mattox offsite
- EMC Surveying & Mapping continuing to check thickness of clay material placement based on 25-foot grid
- David Thompson onsite
- EMC Surveying & Mapping offsite
- WRSScompass breaks for lunch
- WRSScompass begins finish grading clay material based on the field survey data
- David Thompson offsite
- Armstead Townes onsite/offsite - check on need for clay material on Wednesday; informed Armstead to bring clay material on Wednesday morning
- Don Williams onsite/offsite
- WRSScompass shuts down work activities for the day - rain out
- WRSScompass workforce and Frank Sykes offsite
- Dwight Stewart offsite
- 15:45- RAI off-site

#### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

# Brown AND Caldwell

## DAILY FIELD LOG

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** July 7, 2010

**Construction Day No.:** 60

**Weather:** Mostly cloudy; humid - morning;

74°

### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other: Rain day                               |

### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Mike Slovinsky, J. Habegger, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

### SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovinsky and J. Habegger of WRScopass onsite; WRScopass workforce and Frank Sykes onsite: 6:30

- Dwight Stewart onsite

- Rain out - WRScopass decides not to work today due to wet, muddy conditions associated with the clay material

- WRScopass workforce and Frank Sykes offsite

- Dwight Stewart offsite

- RAI performs erosion/sediment control inspection; 0.51 inches of rain on 7/6/10; silt fence intact and sediment observed outside of the silt fence at the southwest corner;

WRScopass will re-anchor silt fence and cleanup sediment on 7/8/10

7:45- RAI off-site

### ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

R. Isaac  
CQA Monitor Signature

7/7/10  
Date

**Project:** Sludge Lagoon Closure

**Date:** July 8, 2010

**Construction Day No.:** 61

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly sunny; breezy - morning;

Mostly cloudy, rain to clearing and sunny; hot 73° - 98°

**BC Personnel:** R. Isaac

**ITEMS WORKD ON:**

- ☐ Clearing and Grubbing
- ☐ Pumping Lagoon Water
- ☐ Sludge Solidification/Stabilization
- ☒ Subbase Construction
- ☐ Geosynthetics Installation

- ☐ Protective/Vegetative Cover Installation
- ☐ Vegetation
- ☐ Perimeter Fence, Gate, and Signs Installation
- ☐ CQA Field Testing
- ☐ Other:

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScopass: Mike Slovinsky, J. Habegger, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

David Thompson - Thompson Repair Service, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Arthur Freeman - H&E Equipment Services, Jackson, MS

Don Williams - ICE Industries, Inc., Grenada, MS

**SUMMARY OF WORK:**

- 6:10 RAI onsite; M. Slovinsky of WRScopass onsite; WRScopass workforce and Frank Sykes onsite: 6:35

- Dwight Stewart onsite

- Jeff Habegger of WRScopass onsite

- Site safety meeting: discussed Heat Stress; signs and symptoms - fatigue, nausea, increased body temperature, cramps; drink plenty of water; supplement w/sports drinks

- WRScopass begins work activities for the day: finish grading clay material; spread, grade, and compact clay material

- First load of clay material from Townes Construction borrow area onsite

- WRScopass placing, spreading, and grading clay material

- Armstead Townes onsite/offsite

- WRScopass breaks for lunch

- WRScopass resumes placing, spreading, grading, and compacting clay material

- Arthur Freeman onsite/offsite - pick up Terex track-mounted excavator to take offsite

- Don Williams onsite/offsite

- WRScopass continuing to place, spread, grade, and compact clay material

- David Thompson onsite/offsite - repair John Deere dozer

- Last load of clay material from Townes Construction offsite; 61 loads - 1,220 cubic yards of clay material delivered for the day

- WRScopass shuts down work activities for the day

- WRScopass workforce and Frank Sykes offsite

18:45- RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** July 9, 2010

**Construction Day No.:** 62

**Weather:** Mostly sunny; humid - morning;  
Mostly cloudy, rain; overcast - 76° - 93°

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input checked="" type="checkbox"/> CQA Field Testing                  |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Field surveying             |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSccompass: Mike Slovensky, J. Habegger, Tyrone Terry, Javier Morgado

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Hays Stephens - EMC Surveying & Mapping, Grenada, MS

Luther Owens - Willis Engineering, Inc., Grenada, MS

**SUMMARY OF WORK:**

- 6:40 RAI onsite; M. Slovensky of WRSccompass onsite; WRSccompass workforce onsite: 6:40
- Site safety meeting: discussed Pinch Points; watch hands and fingers when installing attachments to skid steer i.e. smooth drum roller, etc.
- WRSccompass begins work activities for the day; finish grading clay material; spread, grade, and compact clay material, as needed; field surveying for 25-foot grid
- Frank Sykes onsite
- Armstead Townes onsite/offsite - deliver Caterpillar D5C XL track dozer for use in grading/spreading clay material
- Hays Stephens - EMC Surveying & Mapping onsite; checking clay material at 25-foot grid points
- First load of clay material from Townes Construction borrow area onsite
- WRSccompass placing, spreading, and grading clay material
- WRSccompass continuing to place, spread, grade, and compact clay material
- EMC Surveying & Mapping continuing to check clay material at 25-foot grid points
- Luther Owens onsite; compaction testing for Lift 3: L3-2: 98.4; L3-3: 98.4; L3-4: 101.2; L3-5: 99.6; L3-6: 100.9; L3-7: 100.8; L3-8: 95.3
- WRSccompass breaks for lunch
- Luther Owens offsite
- WRSccompass resumes placing, spreading, grading, and compacting clay material
- WRSccompass temporarily suspends work activities for rain
- Last load of clay material from Townes Construction offsite; 30 loads - 600 cubic yards of clay material delivered for the day
- WRSccompass decides to suspend work for the day due to rain
- RAI conducts Weekly Progress Meeting: attendees: Mike Slovensky and Jeff Habegger of WRSccompass and Elena Goodhall and Rick Isaac of WRSccompass
- WRSccompass uses water truck to clean/spray off Highway 332
- WRSccompass workforce and Frank Sykes offsite
- 15:30- RAI off-site



**ATTACHMENTS:**

- ☒ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*[Handwritten Signature]*

CQA Monitor Signature

*7/9/10*

Date

Project: Sludge Lagoon Closure

Date: July 12, 2010

Construction Day No.: 63

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Weather: Mostly sunny; humid - morning;

Mostly sunny; hot - 80° - 94°

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Field surveying             |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&amp;L Construction, Grenada, MS

Dale Honeycutt - ACT, Grenada, MS

Hays Stevens and Hardy Gross - EMC Surveying &amp; Mapping, Grenada, MS

Don Williams - ICE Industries, Inc., Grenada, MS

## SUMMARY OF WORK:

- 6:20 RAI onsite; M. Slovensky of WRSScompass onsite; WRSScompass workforce and Frank Sykes onsite: 6:30
- Dwight Stewart onsite
- Site safety meeting: discussed Eye Contract w/Dumping Trucks - ground crew needs to be in constant contact with trucks when dumping
- WRSScompass begins work activities for the day; complete clay material; finish grading clay material; spread, grade, and compact clay material, as needed; field surveying for
- 25-foot grid
- Dale Honeycutt onsite/offsite - deliver geotextile fabric
- First load of clay material from Townes Construction borrow area onsite
- Sixth load of clay material onsite from Townes Construction; RAI stops clay deliveries until field survey work is completed and a determination is made if addition clay material is needed; RAI calls Armstead Townes of Townes Construction
- Hays Stephens and Hardy Gross - EMC Surveying & Mapping onsite; checking clay material at 25-foot grid points
- EMC Surveying & Mapping completes checking clay material at 25-foot grid points
- WRSScompass performing finish grading of clay material based on 25-foot grid stakes
- EMC Surveying & Mapping performing field survey along RR Borrow Area alignment to document pre-excavation conditions
- WRSScompass breaks for lunch
- EMC Surveying & Mapping completes field survey along RR Borrow Area alignment to document pre-excavation conditions
- WRSScompass resumes finish grading and compacting clay material
- EMC Surveying offsite for lunch
- WRSScompass continues finish grading and compacting clay material
- WRSScompass and EMC Surveying & Mapping checking grades of fill area; one point at east end is 0.7 of a foot low - fill material will be obtained from finish grading and edges;
- 25-foot grid points documented with a minimum of 1.5 feet of clay material at all grid points
- WRSScompass shuts down work activities for the day
- WRSScompass workforce and Frank Sykes offsite
- Dwight Stewart and EMC Surveying & Mapping offsite
- 16:45 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*[Handwritten Signature]*

CQA Monitor Signature

*7/12/10*

Date

**Project:** Sludge Lagoon Closure

**Date:** July 13, 2010

**Construction Day No.:** 64

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly cloudy to overcast; breezy; humid - morning;  
Clearing to mostly sunny; hot - 80° - 97°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction     | <input type="checkbox"/> CQA Field Testing                             |
| <input type="checkbox"/> Geosynthetics Installation          | <input checked="" type="checkbox"/> Other: Anchor trench excavation    |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Mike Slovensky, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Miles Flynn - RSC Equipment Rental, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

#### SUMMARY OF WORK:

- 6:15 RAI onsite; M. Slovensky of WRSScompass onsite; WRSScompass workforce and Frank Sykes onsite: 6:33
- Dwight Stewart onsite
- Site safety meeting: discussed Personal Protective Equipment (PPE) - eye protection in the sunny conditions: use safety glasses w/sun glasses
- WRSScompass begins work activities for the day: finish grading clay material; smooth drum rolling the clay material; excavate the anchor trench
- RSC Equipment Rental onsite/offsite - delivered the John Deere 310G rubber-tire backhoe/endloader
- Armstead Townes onsite/offsite - remove Caterpillar D5 track-mounted dozer from the site
- WRSScompass continuing to finish ("dress up") the clay material and smooth drum roll the clay material
- WRSScompass begins to excavate the anchor trench and continues to smooth drum roll the clay material surface
- WRSScompass exposes material from the old landfill located to the south and west of the former sludge lagoon while excavating the anchor trench at the SW corner of the cap;
- RAI has WRSScompass suspend excavation of the anchor trench in this location; discussions with Brown and Caldwell personnel and ArvinMeritor determine to use the "run out" method to anchor the geosynthetics; RAI informs WRSScompass of the revision
- WRSScompass begins excavation of the anchor trench at the northwest corner progressing to the northeast corner along the north side of the cap
- WRSScompass encounters roots in the anchor trench excavation along the north side of the cap; RAI takes pictures and discusses w/E. Goodhall any issues related to the roots and the geosynthetics; decision is made to use the "run out" method to anchor the geosynthetics; RAI informs WRSScompass of the revision
- WRSScompass breaks for lunch
- WRSScompass fills in the anchor trench and compacts the backfill material
- WRSScompass back dragging and smooth drum rolling the clay material surface to prepare for geosynthetics installation
- WRSScompass continuing to back drag and smooth drum rolling the clay material surface to prepare for geosynthetics installation
- WRSScompass shuts down work activities for the day
- WRSScompass workforce and Frank Sykes offsite
- Dwight Stewart offsite
- 16:20 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*RUAQ*

CQA Monitor Signature

*7/13/12*

Date

**Project:** Sludge Lagoon Closure

**Date:** July 14, 2010

**Construction Day No.:** 65

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly sunny to overcast; humid - morning;  
Clearing to mostly sunny; hot - 78° - 97°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing                 | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                  | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization   | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction       | <input type="checkbox"/> CQA Field Testing                             |
| <input checked="" type="checkbox"/> Geosynthetics Installation | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSccompass: Mike Slovensky, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Dan Vogt, Dante Wiley, Ananh Souphavanh, Sokvilay, Freddy Shenbaultartch, Vanxay Bounlatag, Bounthom, Mandjivanh Chanthavisay, and Phen - GSI, Inc., Waukesha, WI

#### SUMMARY OF WORK:

- 6:10 RAI onsite; J. Habegger and M. Slovensky of WRSccompass onsite; WRSccompass workforce and Frank Sykes onsite; 6:25
- Dwight Stewart onsite
- Site safety meeting: discussed New Subcontractor onsite - GSI: liner installer; stay away from rolls of material while being moved; pay attention to where liner crew is at all times; stay off of geosynthetics; liner crew will have their own equipment, generators, electric cords, etc.
- WRSccompass begins work activities for the day; touch up the clay material surface; smooth drum rolling the clay material; liner crew inspection of the clay material surface
- GSI liner installation crew onsite
- RAI conducts meeting w/WRSccompass and GSI to discuss geosynthetics installation and quality control
- Townes Construction onsite/offsite - delivered two loads of sand for sand bags
- WRSccompass continuing to clean up clay material surface and smooth drum roll the clay material
- M. Slovensky of WRSccompass offsite
- GSI preparing for geosynthetics installation; making sand bags and marking out geosynthetics limits
- Smooth drum roller breaks down; WRSccompass will have a new smooth drum roller delivered to the site
- RAI reviews the aggregate submittal from WRSccompass - aggregate material is good; returned marked "No Exceptions Taken"
- RSE Equipment Rental onsite/offsite - delivered Ingersoll Rand SD-45 TF Series smooth drum roller and removes Caterpillar backhoe/endloader
- WRSccompass and GSI break for lunch
- GSI begins preparations for geomembrane deployment; WRSccompass resumes cleaning and smooth drum rolling the clay material surface
- GSI performs trial welds and panel deployment; trial welds for four fusion welders passed
- GSI continues to install 60-mil textured geomembrane
- WRSccompass shuts down work activities for the day
- WRSccompass workforce and Frank Sykes offsite
- GSI continues to install 60-mil textured geomembrane
- Dwight Stewart offsite
- GSI shuts down work activities for the day
- GSI offsite



**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_



CQA Monitor Signature



Date

**Project:** Sludge Lagoon Closure

**Date:** July 15, 2010

**Construction Day No.:** 66

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear; humid - morning;

Mostly sunny; hot - 70° - 98°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing                 | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                  | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization   | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input checked="" type="checkbox"/> Subbase Construction       | <input type="checkbox"/> CQA Field Testing                             |
| <input checked="" type="checkbox"/> Geosynthetics Installation | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Don Williams and Chet, ICE Industries, Inc., Grenada, MS

Dan Vogt, Dante Wiley, Ananh Souphavanh, Sokvilay, Freddy Shenbaultarch, Vanxay Bounlatag, Bounthom, Mandjvanh Chanthavisay, and Phen - GSI, Inc., Waukesha, WI

Hays Stevens - EMC Surveying & Mapping, Grenada, MS

Bobby Burton - RES, Inc., Grenada, MS

#### SUMMARY OF WORK:

- 5:55 RAI onsite; J. Habegger and of WRSScompass onsite; Dwight Stewart of S&L Construction onsite; WRSScompass workforce and Frank Sykes onsite: 6:00
- GSI onsite
- Site safety meeting: discussed Vehicle Speed and Smoking Area; GSI personnel informed that the speed limit onsite for all vehicles and a Smoking Area was established east of the Office Trailer
- WRSScompass begins work activities for the day; regrading, back dragging, and smooth drum rolling two areas of the clay material at the east end of the former lagoon
- GSI begins preparations for geomembrane installation to complete the east end
- GSI begins deploying 60-mil textured geomembrane
- GSI begins to make trial welds for fusion welders; all trial welds pass
- GSI begins seam welding of deployed geomembrane
- EMC Surveying & Mapping onsite - field locate the geomembrane, repair locations, and destructive test locations; work on locating the piezometers and groundwater monitoring wells along the PRB Wall
- GSI performing non-destructive tests on seams
- GSI performs trial welds for extrusion welding machines; all trial welds pass
- RES onsite/offsite - deliver an empty rolloff box and remove a full rolloff box from the site
- GSI completes geomembrane panel seaming
- GSI begins geomembrane detail work and repairs
- GSI completes non-destructive tests on seams
- GSI completes geomembrane detail work and repairs
- WRSScompass and GSI break for lunch
- GSI begins deploying geocomposite material over the geomembrane; twist ties are being used to connect the geonet component of the geocomposite between panels; the geotextile component of the geocomposite is being sewn together
- EMC Surveying & Mapping offsite
- WRSScompass shuts down work activities for the day
- T. Terry, Frank Sykes, and D. Stewart offsite

- GSI shuts down work activities for the day

- GSI offsite

19:15 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

*[Handwritten Signature]*

*7/15/10*

**Project:** Sludge Lagoon Closure

**Date:** July 16, 2010

**Construction Day No.:** 67

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Cloudy to clearing; humid - morning;

Becoming overcast; rain; hot - 74° - 90°

**BC Personnel:** R. Isaac

#### ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing                 | <input type="checkbox"/> Protective/Vegetative Cover Installation      |
| <input type="checkbox"/> Pumping Lagoon Water                  | <input type="checkbox"/> Vegetation                                    |
| <input type="checkbox"/> Sludge Solidification/Stabilization   | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                  | <input type="checkbox"/> CQA Field Testing                             |
| <input checked="" type="checkbox"/> Geosynthetics Installation | <input type="checkbox"/> Other:  |

#### CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRSScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dan Vogt, Dante Wiley, Ananh Souphavanh, Sokvilay, Freddy Shenbaulttarch, Vanxay Bounlatag, Bounthom, Mandjvanh Chanthavisay, and Phen - GSI, Inc., Waukesha, WI

#### SUMMARY OF WORK:

- 6:00 RAI onsite; J. Habegger and T. Terry of WRSScompass onsite; Frank Sykes onsite: 6:00
- GSI onsite
- Site safety meeting: discussed 4-Wheelers and High Heat - watch for 4-wheelers being used in geosynthetics installation; drink plenty of water due to high heat
- GSI begins preparations for geocomposite installation to complete the east end
- GSI begins deploying geocomposite
- RAI and J. Habegger inspect silt fence along south side of former lagoon; GSI has knocked down during geosynthetics installation; GSI will work w/WRSScompass to repair
- GSI continues to deploy and seam geocomposite
- GSI completes geocomposite installation
- RAI, J. Habegger, and Dan Vogt perform final inspection of the geocomposite installation - installation is determined to be acceptable
- GSI begins tacking down the 16 oz. geotextile to cover the aggregate material for the geocomposite outlet; placing sand bags all-around the perimeter of the geosynthetics
- WRSScompass breaks for lunch
- GSI completes tacking down the 16 oz. geotextile
- GSI takes lunch break
- WRSScompass begins setting grade markers on top of the geocomposite for the vegetative soil
- GSI back from lunch; cleaning up the site and putting away equipment and materials
- RAI getting geotextile samples ready to send to the laboratory
- RAI calls Precision Geosynthetic Laboratories about destructive sample test results - all destructs pass; RAI informs GSI
- RAI conducts Weekly Progress Meeting; attendees: Jeff Habegger and Tim Morrow of WRSScompass and Elena Goodhall and Rick Isaac of Brown and Caldwell
- T. Terry and Frank Sykes offsite
- GSI offsite
- 15:15 - RAI off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*RUGO*

CQA Monitor Signature

*7/16/10*

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** R. Isaac

**Date:** July 19, 2010

**Construction Day No.:** 68

**Weather:** Clear; humid; becoming overcast to mostly sunny - morning;  
Mostly sunny; hot - afternoon; 75° - 93°

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Arthur Freeman - H&E Equipment Services, Jackson, MS.

**SUMMARY OF WORK:**

- J. Habegger and T. Terry of WRSScompass onsite; Frank Sykes onsite
- Dwight Stewart onsite
- Site safety meeting: discussed the Electric Generator: maintenance, circuit breakers, and proper way to turn on and off
- WRSScompass begins work for the day - preparing for aggregate placement; placing aggregate material around the perimeter of the geosynthetics for the geocomposite outlet
- First load of aggregate material onsite; Memphis Stone & Gravel Co. delivered by JR Duke Trucking of Tillatoba, MS
- 7:30 - RAI onsite
- RAI conducts the weekly erosion/sediment control inspection; two locations where the silt fence is down: 1) along the west end of the former lagoon and at the southeast corner where the ballfield fence was moved; WRSScompass will repair the silt fence in these two location today
- H&E Equipment Services onsite - deliver the Komatsu WA380 rubber-tired endloader and take the Dynapak vibratory sheepsfoot roller off the site
- WRSScompass continues to place the aggregate material for the geocomposite outlet
- H&E Equipment Services offsite
- WRSScompass breaks for lunch
- WRSScompass resumes placing the aggregate material for the geocomposite outlet
- Last load of aggregate material onsite - 20 loads: 514.86 tons
- WRSScompass continues to place the aggregate material for the geocomposite outlet
- WRSScompass places additional geosynthetic materials over the aggregate in the ramp areas for installing the vegetative cover haul road
- WRSScompass shuts down work activities for the day; performs site clean up and equipment servicing
- T. Terry and Frank Sykes offsite
- D. Stewart offsite
- 17:45 - RAI off-site



**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

\_\_\_\_\_  
\_\_\_\_\_

*RUAQ*

CQA Monitor Signature

*7/19/10*

Date

Project: Sludge Lagoon Closure

Date: July 20, 2010

Construction Day No.: 69

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: R. Isaac

Weather: Clear; humid - morning;

Mostly sunny; hot - afternoon; 71° - 93°

## ITEMS WORKD ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&amp;L Construction, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Lashun King, Clay Freeman, Eric Twilley, and Jemmie Coffey - Townes Construction, Grenada, MS

## SUMMARY OF WORK:

6:45 - RAI onsite; J. Habegger and T. Terry of WRScompass onsite; Frank Sykes onsite

- Dwight Stewart onsite

- Site safety meeting: discussed the Truck Traffic Control - speed - 5 mph; trucks will be hauling from the RR Borrow Area; no trucks on the geosynthetics

- WRScompass begins work for the day - excavate soil material along the RR Borrow Area and place on the geosynthetics as vegetative cover; place soil in three foot thick lift to establish haul road for the trucks; dozer will spread and grade the soil to the required two-foot thick cover; spotters to watch for rocks, roots, stumps, etc. and pull out of the fill

- RAI and WRScompass conduct a meeting with the truck drivers to express the importance of keeping the trucks off of the geosynthetics; drive slow and no sharp turns

- WRScompass begins work activities for the day

- Townes Construction begins excavating soil from the RR Borrow Area and hauling to the former lagoon area; WRScompass is spotting where to dump the soil and grading the soil onto the geocomposite

- WRScompass begins placing aggregate material to create the geocomposite outlet around the east end

- WRScompass breaks for lunch

- WRScompass resumes excavating and hauling soil from the RR Borrow Area to the former lagoon area for placement, spreading, and grading of the vegetative cover soil

- WRScompass continues excavating and hauling soil from the RR Borrow Area to the former lagoon area for placement, spreading, and grading of the vegetative cover soil

- WRScompass shuts down work activities for the day

- Townes Construction personnel offsite

- T. Terry and Frank Sykes offsite

- D. Stewart offsite

18:00 - RAI off-site

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

**Project:** Sludge Lagoon Closure

**Date:** July 21, 2010

**Construction Day No.:** 70

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear; humid - morning;

Mostly sunny; hot - afternoon; 75° - 98°

**BC Personnel:** R. Isaac

**ITEMS WORKD ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSccompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Steve McCormick - McCormick Excavating, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Clay Freeman, Eric Twilley, James Fox, and Larry Harris - Townes Construction, Grenada, MS

Nate Givens - Brown and Caldwell, Columbus, OH

**SUMMARY OF WORK:**

6:35 - RAI onsite; J. Habegger and T. Terry of WRSccompass onsite; Frank Sykes onsite

- Dwight Stewart onsite

- Site safety meeting: discussed the Truck Drivers - drivers to stay in the trucks while being loaded and at the dump face; the dozer operator or spotter will direct the driver where to dump

- WRSccompass begins work for the day - excavate soil material along the RR Borrow Area and place on the geosynthetics as vegetative cover; spotters to watch for rocks, roots, stumps, etc. and pull out of the fill

- Townes Construction begins excavating soil from the RR Borrow Area and hauling to the former lagoon area; WRSccompass is spotting where to dump the soil and grading the soil onto the geocomposite

- WRSccompass continues excavating and hauling soil from the RR Borrow Area to the former lagoon area for placement, spreading, and grading of the vegetative cover soil

- WRSccompass breaks for lunch

- WRSccompass resumes excavating and hauling soil from the RR Borrow Area to the former lagoon area for placement, spreading, and grading of the vegetative cover soil

- Nate Givens of Brown and Caldwell onsite

- WRSccompass working on silt fence repairs

- WRSccompass continues excavating and hauling soil from the RR Borrow Area to the former lagoon area for placement, spreading, and grading of the vegetative cover soil

- WRSccompass shuts down work activities for the day

- Townes Construction personnel offsite

- T. Terry and Frank Sykes offsite

- D. Stewart offsite

17:50 - RAI and Nate Givens off-site

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Date: July 22, 2010

Construction Day No.: 71

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: N. Givens

Weather: Clear; humid - morning;

Mostly sunny; hot - afternoon; 75° - 105°

## ITEMS WORKED ON:

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRScopass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&amp;L Construction, Grenada, MS

Don Williams - ICE Industries, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Clay Freeman, Eric Twilley, James Fox, and Larry Harris - Townes Construction, Grenada, MS

## SUMMARY OF WORK:

0645 - NAG onsite; J. Habegger and T. Terry of WRScopass onsite; Frank Sykes onsite

- Dwight Stewart offsite for parts; dozer is out of service due to faulty fuel pump

- Site safety meeting: discussed the Truck Drivers - drivers to stay in the trucks while being loaded and at the dump face; the dozer operator or spotter will direct the driver where to dump

- WRScopass begins work for the day - excavate soil material along the RR Borrow Area and stockpile on geocomposite until dozer is back in service

- Dozer back in service; work continues as planned

- Armstead Townes visits to discuss hauling material from offsite location and associated trucking cost in case of material shortage onsite

- Took a look at the RR borrow area; possibly more material available than had been thought, though still may be short of needed volume

- WRScopass breaks for lunch

- WRScopass resumes excavation of material from RR borrow area, hauling to and grading over geocomposite

- Material at RR borrow area is nearly depleted; Jeff Habegger is waiting for a price for trucking material from offsite

- Don Williams (ICE Industries) visited and suggested using the other end of the embankment; sufficient volume should be available onsite

- Work on vegetative cover stops for the day

- Looked at the proposed borrow area at the East end of the embankment with Armstead Townes, Jeff Habegger and Dwight Stewart; preliminary planning is under way

- Measured exposed area of geocomposite to estimate yardage to finish vegetative cover; requires approx. 4000 yds complete

- Took measurements of mined face of embankment to estimate additional length of borrow area and area to be cleared and grubbed; additional length is approx. 600 ft.

Area to be cleared and grubbed is approx. 1/2 acre.

1900 - NAG offsite

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

07/22/10

**Project:** Sludge Lagoon Closure

**Date:** July 23, 2010

**Construction Day No.:** 72

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Clear; humid - morning;

Mostly sunny; hot - afternoon; 75° - 105°

**BC Personnel:** N. Givens

**ITEMS WORKED ON:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScopass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Don Williams - ICE Industries, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Clay Freeman, Eric Twilley, James Fox, and Larry Harris - Townes Construction, Grenada, MS

**SUMMARY OF WORK:**

0645 - NAG onsite; J. Habegger and T. Terry of WRScopass onsite; Frank Sykes onsite; Dwight Stewart onsite

- Site safety meeting: discussed hand safety - wear gloves when handling debris onsite

- Discussed plan for the day - D. Stewart will clear and grub at borrow area to expose more material, haul road will be tested with loaded truck to ensure sufficient bearing capacity

- D. Stewart began clearing and grubbing on borrow area extension

- Checked progress at borrow area; approximately 350' cleared

- WRS Compass and NAG break for lunch

- Returned from lunch; WRS Compass continued clearing borrow area extension

- Townes Construction crew arrived; hauling to liner resumes with two trucks

- Soft spots in haul road excavated and filled with more suitable material; material excavated from haul road mixed with vegetative cover material on liner

- Don Williams visited to discuss additional dozer work with Jeff H. per prior agreement

1745 - NAG offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date



Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: N. Givens

Date: July 24, 2010

Construction Day No.: 73

Weather: Cloudy; humid - morning;

Partly sunny; hot - afternoon; 75° - 105°

**ITEMS WORKED ON:**

- |  |  |
|--|--|
| <input checked="" type="checkbox"/> Clearing and Grubbing    | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Don Williams - ICE Industries, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Clay Freeman, Eric Twilley, James Fox, and Larry Harris - Townes Construction, Grenada, MS

**SUMMARY OF WORK:**

0645 - NAG onsite; J. Habegger and T. Terry of WRScompass onsite; Frank Sykes onsite; Dwight Stewart onsite; J. Townes and three drivers onsite

- Site safety meeting: discussed safety around dump trucks; do not stand next to truck while it is dumping in case of tipping

- Discussed plan for the day - haul road to be built up with fill material from extended borrow area and hauling to liner to resume, time permitting

- One of three trucks broke down; A. Townes onsite for repair

- J. Habegger decided to build up haul road approximately 1' over entire length of previously excavated borrow area

- WRS Compass and NAG break for lunch; haul road improvements completed

- Returned from lunch; hauling to liner resumed

- Construction activities ended for the day; Townes crew, D. Stewart, T. Terry, F. Sykes offsite

1540 - NAG offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date



**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** N. Givens

**Date:** July 26, 2010

**Construction Day No.:** 74

**Weather:** Partly cloudy; humid - morning;

Mostly cloudy; hot - afternoon; 75° - 100°

**ITEMS WORKED ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Clay Freeman, James Fox, and Larry Harris - Townes Construction, Grenada, MS

**SUMMARY OF WORK:**

0710 - NAG onsite; J. Habegger and T. Terry of WRScompass onsite; Frank Sykes onsite; Dwight Stewart onsite; J. Townes and three drivers onsite

- Site safety meeting: discussed increased construction traffic due to additional truck

- Discussed plan for the day - hauling to resume with four trucks; D. Stewart providing two dozers

- Inspected silt fence; no repairs necessary; hauling to liner under way

- Break for lunch; NAG offsite

- Returned from lunch; hauling and spreading resumed

- Called in to weekly progress meeting with E. Goodhall and R. Isaac; informed EG and RI that vegetative cover should be complete in two to three days

- Informed J. Habegger that he can call E. Goodhall if he has anything to discuss

- Four unused rolls of geocomposite and one roll of HDPE liner loaded and hauled away from site

- Construction activities end for the day; approximately 70% of liner covered

- Townes crew offsite; T. Terry and F. Sykes offsite; D. Stewart offsite

1745 - NAG offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

**Project:** Sludge Lagoon Closure

**Date:** July 27, 2010

**Construction Day No.:** 75

**Project No:** 138466

**Location:** Grenada, Mississippi

**Weather:** Mostly cloudy; humid - morning;

Partly cloudy; hot - afternoon; 75° - 100°

**BC Personnel:** N. Givens

**ITEMS WORKED ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Don Williams - ICE Industries, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Clay Freeman, James Fox, Eric Twilley and Larry Harris - Townes Construction, Grenada, MS

**SUMMARY OF WORK:**

0700 - NAG onsite; J. Habegger and T. Terry of WRSScompass onsite; Frank Sykes onsite; Dwight Stewart onsite; J. Townes and two drivers onsite

- Overnight storm left site muddy; Townes crew offsite; J. Habegger and D. Stewart are clearing mud from surface of haul road

- Discussed plan for the day - hauling to resume when conditions improve

- Inspected silt fence; three sections of downed fence will be repaired once ground dries

- NAG offsite to Fed Ex; D. Stewart clearing mud from surface of haul road

- Returned from Fed Ex; Townes crew onsite; hauling to resume after repairs to haul road are complete

- Hauling to cap resumed

- WRS Compass repaired silt fence

- R. Isaac called; gave him status report; vegetative cover approximately 90% complete

- Storm imminent; Townes crew offsite; T. Terry, F. Sykes offsite; D. Stewart offsite

1820 - NAG offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: N. Givens

Date: July 28, 2010

Construction Day No.: 76

Weather: Cloudy, humid - morning;

Partly cloudy, hot- afternoon; 70° - 95°

**ITEMS WORKED ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

Jeff Townes, Clay Freeman, James Fox, Eric Twilley and Larry Harris - Townes Construction, Grenada, MS

**SUMMARY OF WORK:**

0700 - NAG onsite; J. Habegger and T. Terry of WRScompass onsite; Frank Sykes onsite; Dwight Stewart onsite; J. Townes and four drivers onsite

- Discussed plan for the day; overnight storm left site muddy; D. Stewart will dress haul road and hauling will resume for approximately half the day;

vegetative cover should be complete by end of day barring rain; safety meeting topic: use three-point rule when climbing onto and off of machinery

- Phone call from R. Isaac; gave him status update

- Break for lunch; NAG offsite

- Returned from lunch; hauling to cap resumed

- Called R. Isaac for verification of fence details

- EMC onsite to check elevations and slopes of vegetative cover; will set stakes for finish grading

- Hauling complete until further notice; D. Stewart to borrow area for rough grading; Townes crew offsite

- Surveyors encountered problems with equipment; will return in the morning to set grade stakes

- Fence subcontractor onsite to discuss scope of work

- Surveyors offsite; fence subcontractor offsite; work ended for the day; F. Sykes, T. Terry, D. Stewart offsite

1745 - NAG offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** N. Givens

**Date:** July 29, 2010

**Construction Day No.:** 77

**Weather:** Mostly sunny, humid - morning;

Mostly sunny, humid- afternoon; 75° - 100°

**ITEMS WORKED ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRSScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

Armstead Townes - Townes Construction, Grenada, MS

B. Jones, M. Aufman - Brown and Caldwell, Memphis, TN

**SUMMARY OF WORK:**

0700 - NAG onsite; J. Habegger and T. Terry of WRSScompass onsite; Frank Sykes onsite; Dwight Stewart onsite

- EMC onsite to survey cap and set grade stakes

- Called Rick Isaac to discuss grade on cap

- B. Jones and M. Aufman from the BC Memphis, TN office for surface water sampling and familiarization with sludge lagoon closure activities

- N. Givens offsite for lunch

- N. Givens returns from lunch; EMC continues to set grade stakes; WRSScompass continues to dress borrow area, fill in low areas along silt fence, and debris cleanup site wide

- EMC offsite; will return on Friday, July 30, 2010

- Showed B. Jones and M. Aufman the site and discussed remaining punchlist items to be completed by WRSScompass

- B. Jones and M. Aufman offsite

- Work ends for the day, T. Terry, D. Stewart, and F. Sykes offsite

1745 - NAG offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

  
CQA Monitor Signature

07/29/10  
Date

**Project:** Sludge Lagoon Closure

**Project No:** 138466

**Location:** Grenada, Mississippi

**BC Personnel:** N. Givens

**Date:** July 30, 2010

**Construction Day No.:** 78

**Weather:** Mostly sunny, humid - morning;  
Mostly sunny, humid- afternoon; 75° - 93°

**ITEMS WORKED ON:**

- |  |  |
|--|--|
| <input type="checkbox"/> Clearing and Grubbing               | <input checked="" type="checkbox"/> Protective/Vegetative Cover Installation |
| <input type="checkbox"/> Pumping Lagoon Water                | <input type="checkbox"/> Vegetation  |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input type="checkbox"/> Perimeter Fence, Gate, and Signs Installation       |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing                                   |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:  |

**CONTRACTOR/SUBCONTRACTORS/VISITORS:**

WRScompass: Jeff Habegger, Tyrone Terry

Frank Sykes - Roy Worley Septic Tank Service, Grenada, MS

Dwight Stewart - S&L Construction, Grenada, MS

**SUMMARY OF WORK:**

0700 - NAG onsite; J. Habegger and T. Terry of WRScompass onsite; Frank Sykes onsite; Dwight Stewart onsite

- Site Safety Meeting: Watch for survey crew while moving around the site

- Weekly staffing meeting; D. Stewart, J. Habegger, T. Terry, and F. Sykes; taking grade measurements on cap

- Working on finish grading of cap; filling edge of cap with topsoil from stockpile to blend to grade into cap

- RSC delivers second compact track loader

- EMC onsite to check grades and verify elevations and thickness

- Break for lunch; NAG offsite

- NAG onsite; finish grading continues

- Call into Weekly Progress Meeting

- Finish grading completed; D. Stewart offsite

- Armstead Townes on site to discuss use of dump truck on Saturday for cleanup

- EMC will shoot 25-foot grid on Saturday, July 31, 2010; EMC offsite

- F. Sykes and T. Terry offsite

1730 - NAG offsite

**ATTACHMENTS:**

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other:

CQA Monitor Signature

Date

Project: Sludge Lagoon Closure

Project No: 138466

Location: Grenada, Mississippi

BC Personnel: Brian Jones

Date: August 12, 2010

Construction Day No.: \_\_\_\_\_

Weather: Sunny, hot - mid 90s

## ITEMS WORKD ON:

- |  |   |
|--|---|
| <input type="checkbox"/> Clearing and Grubbing               | <input type="checkbox"/> Protective/Vegetative Cover Installation                 |
| <input type="checkbox"/> Dewatering                          | <input type="checkbox"/> Vegetation   |
| <input type="checkbox"/> Sludge Solidification/Stabilization | <input checked="" type="checkbox"/> Perimeter Fence, Gate, and Signs Installation |
| <input type="checkbox"/> Subbase Construction                | <input type="checkbox"/> CQA Field Testing  |
| <input type="checkbox"/> Geosynthetics Installation          | <input type="checkbox"/> Other:   |

## CONTRACTOR/SUBCONTRACTORS/VISITORS:

WRS Compass: Randy Hillis, Barry Turner

## SUMMARY OF WORK:

9:20 - Arrive at Plant and check-in with Don Williams. Don requested to have a key to the lagoon gate at completion.

9:30 - Arrive at lagoon Site. WRS Compass is on-Site. Perform Site walk of the lagoon and borrow area. Grass is present at both areas, but more prevalent at the borrow area. The chain-link fence is complete at the lagoon at which six no-trespassing signs are posted. A silt fence is present to the west of the lagoon along the ballfield and forest areas. The height of the silt fence for a 16' section low lying area has been lowered to prevent ponding. Gravel and straw has been placed in this area to restrict sediment flow. The height of the silt fence in this area is sufficient to keep the gravel from washing away. Sediment was not observed downgradient of the lowered height silt fence. The gate opening to allow tractor access is 12 feet. WRS Compass provided a padlock for the lagoon gate with two keys.

10:15 - WRS Compass is off-Site. Take pictures of the lagoon, borrow area, and potential drum staging area.11:20 - Depart lagoon Site.12:05 - Return to lagoon Site after having two additional keys made for the padlock. Test both keys; one key works. Depart Site.12:15 - Return to Plant and provide Don Williams with a key to the lagoon gate.

## ATTACHMENTS:

- ☐ Moisture/Density Test Results (i.e. Troxler data)
- ☐ CQA Field Forms
- ☐ Other: \_\_\_\_\_

CQA Monitor Signature

Date



## **Appendix B: Construction/Installation Photographs**

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**Solid Waste Management Unit 4 - Sludge Lagoon Closure**  
**Construction Certification Report**  
**Photograph Log**

Date	Photo ID	Direction	Description
<b>INITIAL SITE ACTIVITIES</b>			
<b>SITE PREPARATION</b>			
4/26/2010	04-26-10-1.jpg	E	Sludge lagoon prior to vegetation clearing
4/26/2010	04-26-10-2.jpg	NW	Sludge lagoon prior to vegetation clearing
4/26/2010	04-26-10-3.jpg	W	Sludge lagoon prior to vegetation clearing
4/19/2010	04-19-10-1.jpg	W	Site entrance and onsite office location on right
4/19/2010	04-19-10-2.jpg	W	Onsite office trailer in place
4/20/2010	04-20-10-1.jpg		Barrier fencing around groundwater monitoring wells
4/27/2010	04-27-10-1.jpg		Diesel fuel tank w/secondary containment
4/27/2010	04-27-10-2.jpg		Roll off box for trash and debris provided by Resource Environmental Services, Inc. (RES) of Ripley, MS
<b>EROSION/SEDIMENT CONTROL</b>			
4/23/2010	04-23-10-1.jpg		Ditch Witch used for silt fence anchor trench
4/23/2010	04-23-10-2.jpg		Installing silt fence
4/21/2010	04-21-10-1.jpg		Backfilled silt fence trench
4/21/2010	04-21-10-2.jpg		Completed silt fence with wire mesh support and barrier fencing
4/22/2010	04-22-10-1.jpg	W	Relocated ballfield fence
4/23/2010	04-23-10-3.jpg		Completed ballfield fence with silt fence erosion control
<b>CLEARING AND GRUBBING</b>			
4/22/2010	04-23-10-2.jpg		Using skid steer to remove trees
4/26/2010	04-26-10-4.jpg		Chipping/mulching trees branches
4/26/2010	04-26-10-5.jpg		Removing existing perimeter fence using the skid steer
4/26/2010	04-26-10-6.jpg	S	Perimeter fence removed
4/26/2010	04-26-10-7.jpg		Grinding small trees with mulcher attachment
4/26/2010	04-26-10-8.jpg	S	Brush cleared from the lagoon berm
4/26/2010	04-26-10-9.jpg	W	Brush cleared from the lagoon berm
4/27/2010	04-27-10-3.jpg		Using a chainsaw to cut down and clear trees
4/27/2010	04-27-10-4.jpg		Mulcher attachment used for clearing brush and small trees
4/27/2010	04-27-10-5.jpg	S	Brush cleared from the berm - east side
4/27/2010	04-27-10-6.jpg	W	Brush cleared from the berm - west side
4/27/2010	04-27-10-7.jpg	W	Brush cleared from the berm - south side
4/27/2010	04-27-10-8.jpg	S	Brush cleared from the berm - north side
4/29/2010	04-29-10-9.jpg		Clearing brush at the Railroad Borrow Area
4/30/2010	04-30-10-1.jpg		Clearing the Railroad Borrow Area
5/4/2010	05-04-10-1.jpg		Clearing the Railroad Borrow Area
5/4/2010	05-04-10-2.jpg	SE	Cleared Railroad Borrow Area
5/4/2010	05-04-10-3.jpg	NW	Cleared Railroad Borrow Area
5/4/2010	05-04-10-4.jpg		Grubbing lagoon berm
5/4/2010	05-04-10-5.jpg		Cleared and grubbed lagoon berm
5/4/2010	05-04-10-6.jpg	E	Cleared and grubbed lagoon berm
5/16/2010	05-16-10-1.jpg	W	Clearing/cutting large trees at Railroad Borrow Area
5/16/2010	05-16-10-2.jpg		Loading large trees onto log truck
5/15/2010	05-15-10-1.jpg		Tub grinder for mulching tree limbs and branches

**Solid Waste Management Unit 4 - Sludge Lagoon Closure**  
**Construction Certification Report**  
**Photograph Log**

Date	Photo ID	Direction	Description
5/17/2010	05-17-10-1.jpg		Loading tub grinder with tree limbs, branches, and brush
5/17/2010	05-17-10-2.jpg		Tub grinder making mulch
5/18/2010	05-18-10-1.jpg		Stump grinding along Railroad Borrow Area alignment
5/18/2010	05-18-10-2.jpg	NW	Trees cleared from the Railroad Borrow Area
<b>PIPELINE ABANDONMENT</b>			
4/29/2010	04-29-10-1.jpg	E	Uncovered PVC inlet pipeline to the former sludge lagoon
4/29/2010	04-29-10-2.jpg	W	Uncovered PVC outlet pipeline and power conduit from the former sludge lagoon
4/29/2010	04-29-10-3.jpg	E	Uncovered PVC outlet pipeline and power conduit from the former sludge lagoon
4/29/2010	04-29-10-4.jpg		Applying PVC pipe adhesive
4/29/2010	04-29-10-5.jpg		Capped PVC outlet pipeline from the former sludge lagoon
4/29/2010	04-29-10-6.jpg		Capped PVC inlet pipeline to the former sludge lagoon
4/29/2010	04-29-10-7.jpg	W	Area backfilled and graded
4/29/2010	04-29-10-8.jpg	E	Area backfilled and graded
<b>TOPSOIL REMOVAL</b>			
5/6/2010	05-06-10-1.jpg		Stripping topsoil along west side
5/6/2010	05-06-10-2.jpg		Stripping topsoil along west side
5/6/2010	05-06-10-3.jpg		Topsoil stockpile at southeast corner
<b>JUDGE SOLIDIFICATION</b>			
<b>LAGOON DEWATERING</b>			
5/4/2010	05-04-10-7.jpg		2-inch diameter HDPE pipe for lagoon water discharge pipeline
5/5/2010	05-05-10-1.jpg		Master Meter High Flow Cold Water Totalizer 4-350 gpm
5/5/2010	05-05-10-2.jpg		Baker Corporation duel cell bag filter
5/6/2010	05-06-10-4.jpg		Lagoon water discharge point
5/13/2010	05-13-10-1.jpg		Dewatering pump in cage to keep out sediment/vegetation
6/7/2010	06-07-10-3.jpg		Lagoon dewatered - west end
<b>SOLIDIFICATION PREPARATION</b>			
5/12/2010	05-12-10-1.jpg	SE	Reagent storage tank
6/16/2010	06-16-10-4.jpg		Type I Portland cement hopper truck being unloaded
6/16/2010	06-16-10-6.jpg		Type I Portland cement being unloaded into unloading tank
6/10/2010	06-10-10-2.jpg		Unloading lime kiln dust (LKD) at the south side of the lagoon
<b>REAGENTS</b>			
5/17/2010	05-17-10-1.jpg		Lime kiln dust (LKD) hopper truck unloading into storage vessel
5/26/2010	05-26-10-1.jpg		Reagent unloading tanks with bag filters
6/3/2010	06-03-10-4.jpg		Reagent unloading tanks with 24 x 84 Beane filter bags
6/11/2010	06-11-10-1.jpg		Lime kiln dust (LKD)
6/11/2010	06-11-10-2.jpg		Type I Portland cement
<b>SOLIDIFICATION PERFORMANCE</b>			
5/21/2010	05-21-10-1.jpg		Exposed sludge material with water at east end of the lagoon
5/22/2010	05-22-10-1.jpg		Initial sludge material mixing at east end of the lagoon
5/25/2010	05-25-10-1.jpg		Mixing sludge material at the east end of the lagoon
5/27/2010	05-27-10-1.jpg		Crane mats
6/7/2010	06-07-10-4.jpg		Slump test

**Solid Waste Management Unit 4 - Sludge Lagoon Closure**  
**Construction Certification Report**  
**Photograph Log**

Date	Photo ID	Direction	Description
6/4/2010	06-04-10-1.jpg		Clay material from the bottom of the lagoon
6/4/2010	06-04-10-2.jpg		Mixing lime kiln dust (LKD) - Cell 4
6/5/2010	06-05-10-1.jpg		Clay material from the side slope of the lagoon - Cell 7
6/3/2010	06-03-10-1.jpg		Adding lime kiln dust (LKD) to the sludge material for mixing
6/3/2010	06-03-10-2.jpg		Adding Type I Portland cement to the sludge material for mixing
6/3/2010	06-03-10-3.jpg		Clay material from the bottom of the lagoon - Cell 3
6/7/2010	06-07-10-1.jpg		Solidifying sludge - Cell 4
6/7/2010	06-07-10-2.jpg		Sludge material being mixed - Cell 4
6/8/2010	06-08-10-1.jpg		Clay material from the bottom of the lagoon - Cell 5
6/8/2010	06-08-10-2.jpg		Solidified sludge - Cell 7
6/9/2010	06-09-10-1.jpg		Lime kiln dust (LKD) on the surface of Cell 5 ready to mixed with the sludge material
6/9/2010	06-09-10-2.jpg		Mixing the lime kiln dust (LKD) - Cell 5
6/10/2010	06-10-10-1.jpg		Crane mats placed on the solidified sludge
6/12/2010	06-12-10-1.jpg		Mixing reagents - Cell 8
6/12/2010	06-12-10-2.jpg		Mixing reagents - Cell 8
6/12/2010	06-12-10-3.jpg		Mixing reagents - Cell 8
6/12/2010	06-12-10-4.jpg		Mixing reagents - Cell 8
6/18/2010	06-18-10-3.jpg		Hydraulic excavators working in tandem
6/18/2010	06-18-10-4.jpg		Hydraulic excavators working in tandem
6/18/2010	06-18-10-5.jpg		Hydraulic excavators working in tandem
6/19/2010	06-19-10-1.jpg		Completed sludge solidification - Cell 11
6/21/2010	06-21-10-4.jpg	E	Completed sludge solidification
6/21/2010	06-21-10-5.jpg	NE	Completed sludge solidification
6/21/2010	06-21-10-6.jpg	NW	Completed sludge solidification
6/21/2010	06-21-10-7.jpg	SE	Completed sludge solidification
6/21/2010	06-21-10-8.jpg	W	Completed sludge solidification
<b>FINAL COVER SYSTEM CONSTRUCTION</b>			
<b>BERM GRADING</b>			
6/21/2010	06-21-10-1.jpg		Excavating berm soil material
6/23/2010	06-23-10-1.jpg		Excavating berm soil material - west side
6/24/2010	06-24-10-1.jpg		Excavating berm soil material - south side
6/22/2010	06-22-10-1.jpg		Excavating, grading, and compacting berm soil material
6/28/2010	06-28-10-1.jpg		Excavating berm soil material - east side
6/21/2010	06-21-10-2.jpg		Pushing berm soil material to cover solidified sludge
6/22/2010	06-22-10-2.jpg		Pushing berm soil material to cover solidified sludge
6/23/2010	06-23-10-1.jpg		Excavating berm soil material - west side
6/23/2010	06-23-10-2.jpg		Spreading excavated berm soil material
6/23/2010	06-23-10-3.jpg		Pushing excavated berm soil material
6/23/2010	06-23-10-4.jpg		Pushing/spreading excavated berm soil material
6/25/2010	06-25-10-1.jpg		Compacting berm soil material
6/28/2010	06-28-10-2.jpg		Compacting berm soil material
6/29/2010	06-29-10-1.jpg		Compacting and sealing berm soil material

**Solid Waste Management Unit 4 - Sludge Lagoon Closure**  
**Construction Certification Report**  
**Photograph Log**

Date	Photo ID	Direction	Description
6/29/2010	06-29-10-2.jpg		Checking grade of graded berm soil material
6/29/2010	06-29-10-3.jpg		Grade stake for berm soil material
6/29/2010	06-29-10-4.jpg	NE	Graded berm soil material south side
6/29/2010	06-29-10-5.jpg	SW	Graded berm soil material north side
6/29/2010	06-29-10-6.jpg	E	Graded berm soil material west side
6/29/2010	06-29-10-7.jpg	N	Graded berm soil material south side
6/29/2010	06-29-10-8.jpg	W	Graded berm soil material east side
6/30/2010	06-30-10-1.jpg		Survey flags marking 25 foot grid for documenting clay material subbase
<b>CLAY MATERIAL</b>			
7/1/2010	07-01-10-1.jpg		Spotting truck to dump clay material
7/1/2010	07-01-10-2.jpg		Compacting clay material
7/2/2010	07-02-10-1.jpg		Dumping clay material
7/2/2010	07-02-10-2.jpg		Load of clay material - approximately 20 cubic yards
7/2/2010	07-02-10-3.jpg		Spreading clay material
7/2/2010	07-02-10-4.jpg		Spreading clay material
7/2/2010	07-02-10-5.jpg		Water conditioning the clay material
7/3/2010	07-03-10-1.jpg		Grading clay material to the grade stakes
7/3/2010	07-03-10-2.jpg		Townes Construction clay soil material borrow area
7/6/2010	07-06-10-1.jpg		Finish grading clay material
7/8/2010	07-08-10-3.jpg		Compacting clay material
<b>GEOSYNTHETICS PREPARATION</b>			
7/8/2010	07-8-10-1.jpg		Finish grading clay material
7/8/2010	07-8-10-2.jpg		Back dragging clay material
7/9/2010	07-9-10-1.jpg		Field surveying to check / verify thickness of the clay material
7/12/2010	07-12-10-1.jpg		Preliminary smooth drum rolling clay material
7/13/2010	07-13-10-1.jpg		Back dragging and smooth drum rolling clay material
7/14/2010	07-14-10-1.jpg		Final smooth drum rolling clay material
7/14/2010	07-14-10-2.jpg		Clay material ready for installation of geosynthetics
7/14/2010	07-14-10-3.jpg		Filling sand bags for securing geosynthetics during installation
6/15/2010	06-15-10-2.jpg		60-mil HDPE geomembrane identification tag
6/15/2010	06-15-10-3.jpg		Stored rolls of 60-mil HDPE geomembrane
6/15/2010	06-15-10-4.jpg		Unloading 60-mil HDPE geomembrane
6/16/2010	06-16-10-3.jpg		Stored rolls of geocomposite
6/16/2010	06-16-10-5.jpg		Unloading geocomposite
<b>GEOSYNTHETICS INSTALLATION</b>			
7/14/2010	07-14-10-4.jpg		PWT Wedge-IT 2000 Series fusion welder
7/15/2010	07-15-10-1.jpg		DEWTECH Pro V extrusion welder
7/14/2010	07-14-10-5.jpg		PWT Accura Lite Portable Tensiometer
7/14/2010	07-14-10-6.jpg		Performing trial weld
7/14/2010	07-14-10-7.jpg		Performing trial field weld test
7/14/2010	07-14-10-8.jpg		Deploying geomembrane roll using forklift with spreader bar
7/15/2010	07-15-10-2.jpg		Deploying geomembrane panel



**Solid Waste Management Unit 4 - Sludge Lagoon Closure**  
**Construction Certification Report**  
**Photograph Log**

Date	Photo ID	Direction	Description
7/14/2010	07-14-10-9.jpg		Welding geomembrane panels
7/14/2010	07-14-10-10.jpg		Aligning and cleaning geomembrane weld path
7/14/2010	07-14-10-11.jpg		Welding geomembrane panels
7/14/2010	07-14-10-12.jpg		Pressure gauge for air testing geomembrane seam
7/14/2010	07-14-10-13.jpg		Geomembrane panel designation
7/14/2010	07-14-10-14.jpg		Geomembrane seam information
7/15/2010	07-15-10-5.jpg		Geomembrane destructive test designation
7/15/2010	07-15-10-6.jpg		Geomembrane destructive test information
7/15/2010	07-15-10-7.jpg		Geomembrane repair designation
7/15/2010	07-15-10-8.jpg		Geomembrane patch set in place
7/15/2010	07-15-10-9.jpg		Tacking patch to geomembrane panel
7/15/2010	07-15-10-10.jpg		Grinding patch and geomembrane panel for extrusion welding preparation
7/15/2010	07-15-10-11.jpg		Extrusion welding patch to geomembrane panel
7/15/2010	07-15-10-12.jpg		Applying soapy solution for vacuum test
7/15/2010	07-15-10-13.jpg		Performing vacuum testing of an extrusion weld
7/15/2010	07-15-10-14.jpg		Deploying geomembrane
7/16/2010	07-16-10-1.jpg		Deploying geomembrane
7/15/2010	07-15-10-15.jpg		Zip tying the geonet component of the geomembrane together
7/15/2010	07-15-10-16.jpg		Completed zip tie
7/15/2010	07-15-10-17.jpg		Completed zip tie along two geomembrane panels
7/16/2010	07-16-10-2.jpg		Geomembrane sewing machine used to seam the geotextile component
7/16/2010	07-16-10-3.jpg		Sewing geotextile component of the geomembrane
7/15/2010	07-15-10-18.jpg		Sewing geotextile component of the geomembrane
7/15/2010	07-15-10-19.jpg		Sewing geotextile component of the geomembrane
7/15/2010	07-15-10-20.jpg		Completed stitch for geotextile component of the geomembrane
<b>COARSE AGGREGATE DRAINAGE OUTLET</b>			
7/19/2010	07-19-10-1.jpg		Placing coarse aggregate stone
7/19/2010	07-19-10-2.jpg		Grading coarse aggregate stone
7/19/2010	07-19-10-3.jpg		Completed coarse aggregate stone
<b>VEGETATIVE COVER SOIL</b>			
7/20/2010	07-20-10-1.jpg		Excavating and loading vegetative cover soil from the Railroad Borrow Area
7/20/2010	07-20-10-2.jpg		Dumping vegetative cover soil
7/20/2010	07-20-10-3.jpg		Spreading vegetative cover soil
7/21/2010	07-21-10-1.jpg		Spreading vegetative cover soil
7/21/2010	07-21-10-2.jpg		Grade marker for the vegetative cover soil
7/22/2010	07-22-10-1.jpg	SE	Vegetative cover soil placed over the geomembrane
7/23/2010	07-23-10-1.jpg		Cleaning the Railroad Borrow Area extension
7/23/2010	07-23-10-2.jpg		Cleared Railroad Borrow Area extension
7/23/2010	07-23-10-3.jpg		Constructing improved haul road through the Railroad Borrow Area
7/24/2010	07-24-10-1.jpg		Constructing improved haul road through the Railroad Borrow Area
7/24/2010	07-24-10-2.jpg		Loading vegetative cover soil from the Railroad Borrow Area extension
7/27/2010	07-27-10-2.jpg	NW	Final grading the vegetative cover soil

**Solid Waste Management Unit 4 - Sludge Lagoon Closure**  
**Construction Certification Report**  
**Photograph Log**

Date	Photo ID	Direction	Description
7/28/2010	07-28-10-1.jpg	SW	Final grading the vegetative cover soil
7/28/2010	07-28-10-2.jpg	S	Final grading the vegetative cover soil
7/28/2010	07-28-10-3.jpg	SE	Final grading the vegetative cover soil
<b>SITE RESTORATION</b>			
<b>EROSION CONTROL</b>			
8/12/2010	08-12-10-1.jpg		Soil for erosion maintenance
<b>SEEDING</b>			
8/10/2010	08-10-10-1.jpg		Wheat straw and Bermudagrass hay - temporary vegetation
8/10/2010	08-10-10-2.jpg		Vegetative cover soil disc'd and dragged - temporary vegetation
8/10/2010	08-10-10-3.jpg		Picking up roots/rock in preparation of seeding - temporary vegetation
8/10/2010	08-10-10-4.jpg		Erosion control mat at the edge of the vegetative cover - temporary vegetation
8/10/2010	08-10-10-5.jpg		Wheat straw and Bermudagrass hay in place following seeding - temporary vegetation
10/15/2010	10-15-10-1.jpg		Spreading fertilizer
10/15/2010	10-15-10-2.jpg		Spreading fertilizer
10/15/2010	10-15-10-3.jpg		Permanent seeding
10/15/2010	10-15-10-4.jpg		Permanent seeding
10/15/2010	10-15-10-5.jpg		Permanent seeding former Railroad Borrow Area
10/15/2010	10-15-10-6.jpg		Permanent seeding former Railroad Borrow Area
<b>COVER VEGETATION</b>			
8/12/2010	08-12-10-2.jpg	SW	Cover vegetation and perimeter fence
8/12/2010	08-12-10-3.jpg	NW	Cover vegetation and perimeter fence from the ballfield
8/12/2010	08-12-10-4.jpg	W	Cover vegetation and perimeter fence - east side
8/12/2010	08-12-10-5.jpg	E	Cover vegetation and perimeter fence - west side
8/12/2010	08-12-10-6.jpg	SE	Cover vegetation and perimeter fence
8/12/2010	08-12-10-7.jpg	SE	RR Borrow Area vegetation
8/12/2010	08-12-10-8.jpg		RR Borrow Area vegetation - north end
<b>PERIMETER FENCE AND GATE</b>			
8/12/2010	08-12-10-9.jpg	W	Perimeter fence along south side
8/12/2010	08-12-10-10.jpg		Double wide swing access gate in perimeter fence
8/12/2010	08-12-10-12.jpg	E	Perimeter fence along north side
8/12/2010	08-12-10-13.jpg	S	Perimeter fence along west side
8/12/2010	08-12-10-14.jpg	S	Perimeter fence along east side
<b>SIGNS</b>			
8/12/2010	08-12-10-11.jpg		Warning sign attached to fence fabric on access gate
8/12/2010	08-12-10-12.jpg		Warning sign attached to fence fabric

**PHOTOGRAPHS CONTAINED IN  
SEPARATE FOLDER**

## Appendix C: Resumes

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Brown and Caldwell – CQA Certifying Engineer and Inspectors

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Richard A. Isaac, P.E.



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## Experience Summary

Rick Isaac has 32 years of extensive experience managing, performing, and certifying engineering design, permitting, and construction quality assurance (CQA) programs for new land disposal and other solid and hazardous waste management facilities. Mr. Isaac's CQA experience includes landfills in Ohio, Virginia, West Virginia, Pennsylvania, and Maryland for new cell construction, final cover system construction and final landfill closure, and landfill gas collection and control system (GCCS) installations. Mr. Isaac has prepared and certified construction quality assurance plans (CQAPs) for landfills used as the basis for performing field oversight and CQA services. Mr. Isaac has managed and certified the CQA activities on recent projects for Republic in Ohio at the Lorain County II Landfill, County Environmental of Wyandot Landfill, County Land Development (CLD) Landfill, and Lewis Landfill (Closed). He has successfully completed and received approval of Construction Certification Reports from the Ohio Environmental Protection Agency (Ohio EPA) for various types of construction at each of these landfills.

In addition, Mr. Isaac brings to his work extensive experience in managing feasibility studies (FS) and remedial design/remedial action (RD/RA) for Superfund sites under Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) and state-led remedial sites, as well as managing corrective measures studies (CMS) and implementation of remediation systems for operating facilities under Resource Conservation and Recovery Act (RCRA). He also possesses extensive experience with bid procurement services including preparation of contract documents, technical specifications, and construction drawings for a wide variety of projects including solid and hazardous waste facilities, remediation, and the cleaning and demolition of buildings, both municipal and industrial. He participates in and/or conducts pre-bid and pre-construction meetings, bid review, evaluation, recommendation, and contract award.

### Assignment

*Certifying Engineer and Field CQA Inspector*

### Education

(b) (6)

### Registration

*Professional Engineer in Ohio, Pennsylvania, Michigan, Mississippi, and Louisiana; West Virginia (retired status); Virginia (retired status); Colorado (retired status); Wyoming (retired status); and Montana (retired status)*

### Experience

32 years

### Joined Firm

2007

### Training

*OSHA 29 CFR 1910.120, Health and Safety Training*

### Relevant Expertise

- Solid and Hazardous Waste Management
- CERCLA, RCRA, and Remediation
- Site Assessments and Investigations
- Regulatory Compliance
- Storm Water/Surface Water Management
- Abandoned Mine Lands and Mining

**Brown AND Caldwell**

## Solid and Hazardous Waste Management

### County Land Development Landfill Closure CQA Services, Republic Services, Inc., Salem, Ohio

Managed the CQA for the implementation of final closure activities at a sanitary/construction demolition debris (C&DD) landfill in Salem, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the final closure implementation including final cover construction, landfill gas management system expansion, and storm water controls. Managed and assisted in the preparation, performed quality assurance (QA) review, and served as the "Engineer of Record" for the Final Closure Certification Report submitted to the Ohio EPA to document the implementation of the final landfill closure construction.

### County Environmental of Wyandot Landfill Gas Design and CQA Services, Republic Services, Inc., Carey, Ohio

Managed the CQA for the expansion of the landfill gas management system at a landfill in Carey, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the expansion implementation activities. The expansion activities included installation of an enclosed flare station, condensate sumps, 24-inch diameter high-density polyethylene (HDPE) header pipeline, laterals to new and re-drilled gas extraction wells, condensate and airlines, and road crossings. Managed the preparation and provided QA review of the construction drawings for the landfill gas management system expansion. Assisted in the preparation, performed QA review, and served as the "Engineer of Record" for the Certification Report submitted to the Ohio EPA to document the landfill gas system expansion installation.

Redaction(s)  
subject to Exemption 5 (Personal  
Privacy Information)

#### **Lorain County II Landfill Gas Design and CQA Services, Republic Services, Inc., Oberlin, Ohio**

Managed the CQA for the expansion of the landfill gas management system at a landfill in Oberlin, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the expansion implementation activities. The expansion activities included installation of an enclosed flare station, condensate sumps, 24-inch and 18-inch diameter HDPE header pipelines, laterals to new and re-drilled gas extraction wells, condensate and airlines, and road crossings. Managed the preparation and provided QA review of the construction drawings for the landfill gas management system expansion. Assisted in the preparation, performed QA review, and served as the "Engineer of Record" for the Certification Report submitted to the Ohio EPA to document the landfill gas system expansion installation.

#### **Lorain County I Landfill Gas CQA Services, Allied Waste Industries, Inc., Oberlin, Ohio**

Managed the CQA for the expansion of the landfill gas management system at a closed landfill in Oberlin, Ohio. Provided direction to the field inspectors who were onsite full-time throughout the duration of the expansion implementation activities. The expansion activities included installation of 8-inch diameter HDPE header pipelines, laterals to new and re-drilled gas extraction wells, installation of Landtec combination wellheads, leachate system force main, condensate and airlines, and road crossings. Assisted in the preparation, performed QA review, and served as the "Engineer of Record" for the Certification Report submitted to the Ohio EPA to document the landfill gas system expansion installation.

#### **Cherokee Run Landfill Gas Design Services, Republic Services, Inc., Bellefontaine, Ohio**

Managed the design of the expansion of the landfill gas management system at a landfill in Bellefontaine, Ohio. Provided direction to the design engineers who prepared the construction drawings and details for use by the installer to construct the landfill gas management system expansion. The expansion activities included installation of a condensate sump, 18-inch diameter HDPE header pipeline, laterals to new and re-drilled gas extraction wells, and condensate and airlines. Provided QA review of the construction drawings for the landfill gas management system expansion.

#### **Noble Road Landfill Vertical Expansion Perimeter Berm Design, Republic Services, Inc., Shiloh, Ohio**

Managed the design of a perimeter berm used to expand the available air space at a landfill in Shiloh, Ohio. Provided direction and assisted staff engineers in the preparation of "construction-ready" design drawings for use by contractors in preparation of bids. The drawings included grading plans, construction sequence plans, leachate management system plans, storm water management plans, and details. Prepared the contract documents and technical specifications for use by contractors in preparing bids. Participated in the bid procurement, bid review, and contractor selection for construction of the perimeter berm. Performed QA review, and served as the "Engineer of Record" for the berm design.

#### **Hazardous Waste Landfill Remediation, Laufen International, Inc., East Sparta, Ohio**

As part of a RCRA Corrective Action through a Consent Decree with the U.S. EPA Region 5, prepared an Interim Measures Work Plan for the remediation of a hazardous waste landfill at a facility in eastern Ohio. The Interim Measures included landfill cap enhancements, leachate management system modifications, construction of a flood protection levee, modification of the perimeter surface drainage system, and modification of the settlement monitoring program. Managed and prepared the contract documents, technical specifications, and drawings to procure a geosynthetics installer for the synthetic components of the new final cover system. Managed the implementation and CQA for the construction of the Interim Measures including construction of a new final cover system to encapsulate the existing landfill and the geotechnical program and construction of the flood protection levee. Prepared the construction certification report for submittal to the U.S. EPA following completion of the remediation activities.

#### **Design, Permitting, and Construction of a Solid Waste Transfer Station, Rumpke Waste, Inc., Ironton, Ohio**

Managed the design, permitting, and construction of a solid waste transfer station for a major solid waste company in southeast Ohio. The facility permit was through the Ohio EPA Southeast District Office in accordance with the Ohio Administrative Code rules and regulations pertaining to transfer stations. Coordinated and managed the transfer facility design by assembling a team of design professionals including site work, geotechnical and structural, environmental management systems, architectural, and mechanical,

electrical, and plumbing including both wet and dry fire suppression systems. Prepared and obtained the required building permits through the Ohio Department of Commerce, Bureau of Building Code Compliance office. Managed the preparation of the contract documents, technical specifications, and construction drawings including QA/QC of the final bid documents and was responsible for the bid procurement including pre-bid meeting, bid evaluation, recommendation, and contract award. Performed limited CQA during the facility construction including project progress meetings, contractor requests for information, pay application review and approval, and change order requests.

**Design and Permitting for a Type I Restricted Waste Landfill, Mittal Steel USA, Burns Harbor, Indiana**

Managed the design and permit preparation for a Type I Restricted Waste Landfill for disposal of secondary wastewater treatment plant sludge at a major steel manufacturing facility in Indiana. Performed the leachate management system evaluation including landfill floor configuration, HELP Model to determine leachate volumes, and design calculations for pipe sizes, perforation openings, sumps, and pumps. Assisted with the preparation of the Special Exception to the Zoning Application required for the facility.

**C&DD Landfill Closure Certification, Stambaugh Properties Ravenna, Ohio**

Managed the closure and closure certification of a C&DD landfill in Ravenna, Ohio. Performed field oversight services including soil sample collection for geotechnical analysis. Prepared the Closure Certification Report and served as the Engineer-of-Record. Submitted the Closure Certification Report to the Portage County Health Department.

**Hazardous Waste Facility Post – Closure Plan, ESAB Welding & Cutting Ashtabula, Ohio**

Prepared and submitted to the Ohio EPA a hazardous waste facility post-closure plan for former lime ponds and associated impoundments at a welding wire manufacturer in Northeast Ohio. Post-closure plan included discussions on site security, inspection plan, monitoring plan, maintenance plan, and financial assurance.

**Design and Permitting of a Solid Waste Transfer Station, Waste Management, Inc., Wooster, Ohio**

Managed the design and permitting of a solid waste transfer station for a major solid waste company in central Ohio. The design included grading and storm water control plans, vehicle sequencing and staging plans, and detailed design of the transfer building structure and operating pad.

**Design and Permitting for the Vertical Expansion of a Sanitary Landfill, Mid-American Waste Systems, Gary, Indiana**

Managed the design and permitting for the vertical expansion of an existing sanitary landfill. Project included the design of leachate management, gas management, grading, closure and post-closure, and erosion and sediment control plans. Coordinated site remediation activities, including a toe drain collection and conveyance system and a groundwater cut-off slurry wall.

**Design and Permitting for the Upgrade and Compliance of a Large Sanitary Landfill, City of Virginia Beach, Virginia**

Managed the design and permitting for upgrade and compliance of a large existing sanitary landfill located in the Tidewater region of Virginia with new Subtitle D regulations. The design included plans for grading, leachate collection system and groundwater underdrain, closure and post-closure, and storm water management. Wetlands associated with expansion were permitted through the US Army Corps of Engineers Nationwide 26 Permit process.

**Design and Closure of an On-Site Waste Disposal Site at an Aluminum-Processing Facility, Alcoa Cleveland Works, Cleveland, Ohio**

Managed the design and closure of an on-site waste disposal site at an aluminum processing facility. Closure plan included grading, storm water management, gas management, post-closure care, and land-use plans.

**Design and Permitting for Closure of Three Disposal Units at a Coke Facility, Wheeling-Pittsburgh Steel, Follansbee, West Virginia**

Managed the design and permitting for the closure of three disposal units located at a coke facility along the Ohio River. Closure plans included grading, storm water management, gas management, and post-closure care



and land use plans. Designed the closure plans and prepared permit applications as "fast track" projects in order to meet imposed regulatory deadlines.

**Closure of a Hazardous Ash Disposal Impoundment at a Paint Pigment Facility, Cytec Industries, Inc., Washington, West Virginia**

Managed the closure of a hazardous ash disposal impoundment at a paint pigment facility located along the Ohio River in West Virginia. The closure included final grading plan; final cover system configuration, including geogrids to allow construction equipment access to the ash material during the construction phase; and surface water management.

**Design and Preparation of Permit Application Drawings for the Vertical Expansion of a Landfill, City of Barnstable, Massachusetts**

Managed the design and preparation of permit application drawings for the vertical expansion of an existing landfill in Massachusetts. The project included the design of grading plans, disposal cell phase and sequence plans, storm water management, leachate collection and treatment systems, landfill gas management system, liner and fill cap system configurations, and closure and post-closure care plans. The existing site is located on Cape Cod within a Zone II Aquifer system, which required specialized engineering designs to ensure zone environmental protection of the groundwater systems at the site.

**Preparation of a Waste Alternatives Study for a Large Paper Mill Facility, WESTVACO, Luke, Maryland**

Managed the preparation of a Waste Alternatives Study for a large paper mill facility located in western Maryland. The study compared the development, design, permit preparation, and construction of two potential landfill sites: one located in West Virginia and the second located in Maryland. The study evaluated operations, design, permitting, material hauling to each site, and construction of each potential site for a study period of 20 years, with present worth analysis performed to determine capital required to finance the project. Each potential site was also compared to contract waste collection, transportation, and disposal by an independent waste contractor.

**Design and Permitting for a Construction and Demolition Debris Landfill, Warren Recycling, Inc., Warren, Ohio**

Managed the design and permitting for a C&DD landfill located in Warren, Ohio. The project included License Application forms, grading plans, leachate management plans, storm water management plans, and fill sequence plans. Applied for and received a variance from groundwater monitoring from the City Health Department.

**Design and Permitting for a Construction and Demolition Debris Landfill, Iron Valley, Chesapeake, Lawrence County, Ohio**

Managed the design and permitting for a C&DD landfill located in Lawrence County, Ohio. The project included License Application forms, grading plans, leachate management plans, storm water management plans, and fill sequence plans.

**Design and Permitting of the Closure for a Residual Carbon Waste Disposal Facility, The Stackpole Corporation, St. Marys, Pennsylvania**

Managed the design and permitting of the closure for a residual carbon waste disposal facility in Pennsylvania. Design included a combination RCRA-style final cover system and standard State of Pennsylvania cover system.

**CERCLA, RCRA, and Remediation**

**Bid Documents, Technical Specifications and Construction Drawings for a Hydraulic Barrier Wall and Groundwater Extraction and Treatment System for a Site in Holland, Michigan**

Prepared the bid documents, technical specifications, and construction drawings for the installation of a hydraulic barrier wall and groundwater extraction and treatment system at a former manufacturing site. The hydraulic barrier wall consists of a soil-bentonite (SB) slurry wall and blast furnace slag- cement-bentonite (BFSCB) slurry wall. Groundwater extraction and treatment system consists of five extraction wells, water

filtration treatment, and deep well injection under high pressure. Bid documents and technical specification were prepared to following the CSI 2004 format. Participated in pre-bid meetings, bid evaluation, and contractor recommendation and contract award. Served as the Engineer-of Record for the design and assisted with the field CQA program including contractor oversight, project progress meetings, and contractor requests for information.

**Preparation of RD/RA for Former Tar and Chemical Facility, Reilly Industries, Inc., Dover, Ohio**

Managed the preparation of the RD/RA for a former tar and chemical facility located in Dover, Ohio. The remedial design included excavation of on-site soils and sediments contaminated with polycyclic aromatic hydrocarbons (PAHs), and benzene, toluene, ethylbenzene, and xylene (BTEX) for either off-site treatment by thermal destruction and disposal or placement within an on-site building foundation closed by the construction of an Ohio EPA- compliant solid waste final cover system; construction of a groundwater recovery trench with recovered groundwater discharged to the local publically owned treatment works (POTW); and placement of soil cover.

**Hydrogeologic Site Investigation and Preparation of a Focused FS for a Lagoon at a Major Coke-Producing Facility, US Steel, Clairton, Pennsylvania**

Managed the performance of a hydrogeologic site investigation and preparation of a "focused" FS for a lagoon contaminated with polynuclear aromatic hydrocarbons, volatile organic compounds (VOCs), and semi-volatile organic compounds (SVOCs) at a major coke- producing facility. Performed the FS to adhere to the requirements of the Pennsylvania Department of Environmental Protection (PADEP). Alternatives evaluated included augmenting the existing groundwater pump and treat with lagoon sediment solidification/stabilization and construction of a PADEP-compliant final cover system.

**Site Investigation, Permitting, Remedial Design, and Remediation Implementation at a Creosote Wood Treating Facility, Southern Wood Piedmont, Benson, North Carolina**

Managed the site investigation, permitting, remedial design, and remediation implementation at a creosote wood treating facility in North Carolina. Surface impoundments used for disposal of creosote and surface water were remediated by stabilization/solidification of the resulting sludge and covering with a solid-waste-style final cover system.

**Preparation of a Feasibility Study for a Large Primary Aluminum Facility, Ormet, Hannibal, Ohio**

Managed the preparation of a FS for a large primary aluminum facility located along the Ohio River in the State of Ohio. Five impoundments, a former potash disposal area, a former spent carbon disposal area, a former construction material and demolition debris area, and the backwash area required remediation for fluoride, cyanide, and VOCs. The final proposed remedy included construction of RCRA-style final cover systems; soil washing/soil flushing aided by a Ranney well, which influenced the flow of groundwater; and river sediment dredging.

**Preparation of a "Focused" Corrective Measures Study for a Hazardous Measures Recycling Facility, Safety-Kleen, Hebron, Ohio**

Managed the preparation of a "focused" CMS for a hazardous materials recycling facility in the State of Ohio. Implemented interim corrective measures including groundwater recovery wells and low-profile air stripper with a groundwater cut-off wall. The CMS evaluated alternatives for remediating VOCs that had entered the soils and groundwater as a result of a fire at the facility.

**Design of an Ultraviolet Peroxidation Groundwater Treatment System, Honeywell, Annapolis, Maryland**

Managed the design of an ultraviolet (UV) peroxidation groundwater treatment system. The design included the UV system and associated groundwater recovery system for the remediation of VOCs, and SVOCs. Prepared contract documents, technical specifications, and construction drawings for use in the contractor bid procurement process.



### **Paint Sludge and Sediment Remediation in Lake Michigan, Flanders Industries, Inc., Menominee, Michigan**

Managed the design and preparation of contract documents, technical specifications, and construction drawings for paint sludge and sediment remediation in Lake Michigan. Project included the design and construction of an impermeable dike built in Lake Michigan to isolate the contaminated sediments, sediment removal plans, sediment staging and sequencing plans, sediment testing plans, and site restoration plans.

### **Design and Construction of a Recovery and Treatment System at a Carbon Graphitizing Facility, The Stackpole Corporation, St. Marys, Pennsylvania**

Provided QA/QC and senior oversight for the design and construction of a recovery and treatment system at a carbon graphitizing facility in Pennsylvania. The system included 14 groundwater recovery wells and soil vapor extraction for chlorinated organics.

## **General Engineering**

### **Implementation of Design/Build Services for Building Demolition, TRW, Inc., Cleveland, Ohio**

**Lead Engineer** responsible for providing direction and oversight to the onsite CQA inspector throughout the performance of the building demolition for a former automobile parts manufacturing facility. Site activities included asbestos abatement, multi-story building complex demolition consisting of steel and wood frame, concrete, block and brick buildings including removal, cleaning, and off-site disposal of tanks and pipelines containing residual materials, removal, cleaning, and off-site disposal of PCB-containing transformers, and segregation and recycling of steel, concrete, and brick materials. Provided interpretation of project specifications and conducted bi-monthly project progress meetings.

### **Design, Technical Specifications and Construction Drawings for Filter Press Installation, Whirlpool Corporation, Marion, Ohio**

**Project Manager** for the design and preparation of technical specifications and construction drawings for the installation of a filter press in an existing water treatment building. Prepared the civil component of the specifications and drawings and managed the preparation of the structural, mechanical, electric, and plumbing (MEP) components of the project. Installed the filter press in the existing filter press building by retrofitting the inside of the building and the existing structural components and MEP. Installation of the filter press allowed the client to realize a two-fold increase in filtering the effluent from the onsite wastewater treatment plant (WWTP).

### **Technical Specifications and Construction Drawings for Building Demolition, City of Dayton, Office of Economic Development, Dayton, Ohio**

Prepared the contract documents, bidding documents, technical specifications, and construction drawings for the demolition of a 845,000 square foot, multi-story building complex consisting of steel frame, concrete, block and brick buildings including removal and off-site disposal of tanks and pipelines containing residual materials. Contract and bidding documents were prepared to adhere to client's (municipal) preferred formats. Participated in pre-bid and pre-demolition meetings, bid evaluation, and contractor recommendation and contract award. Managed the CQA program including contractor oversight, project progress meetings, and contractor requests for information.

### **Technical Specifications and Construction Drawings for Building Demolition, Columbus Recreation and Parks, Columbus, Ohio**

Prepared the contract documents, bidding documents, technical specifications, and construction drawings for the demolition of a 25,500 square foot, three-story, steel frame, concrete, block and brick building including removal and off-site disposal of an underground storage tank (UST). Contract and bidding documents were prepared to adhere to client's (municipal) preferred formats. Participated in pre-bid and pre-demolition meetings, bid evaluation, and contractor recommendation and contract award. Project included field survey and verification of existing utilities associated with the building and preparation of a site grading plan following removal of the building debris from the site.

### **Cleaning, Asbestos Abatement, and Demolition of Aboveground Storage Tanks, Buildings, Process Equipment, and Pipelines at a Large Coal Tar Refining Facility, Reilly Industries, Inc., Cleveland, Ohio**

Managed the cleaning, asbestos abatement, and demolition of aboveground storage tanks (500 to 1,000,000 gallons) and pipelines and demolition of facility buildings and process equipment at a large coal tar refining facility under the Ohio EPA Cessation of Regulated Operations (CRO) Program. Products produced at the site included coal tar and coal tar distillates, creosote, naphthalene, and oils. Directly prepared technical specifications and construction drawings for use in bid procurement, conducted pre-bid and pre-demolition meetings, bid review and evaluation and assisted client with contract award. Managed the field oversight services throughout performance of the field activities.

## **Site Assessments and Investigations**

### **Preparation of Phase I Environmental Site Assessment, City of Steubenville, City Engineer, Steubenville, Ohio**

**Project Manager.** Performed the Phase I Environmental Site Assessment (ESA) in accordance with ASTM E1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process. The Phase I ESA included environmental database searches, interviews with past property owners, limited title searches, site reconnaissance, agency information reviews, and report preparation.

### **Preliminary Phase II Site Screening, Whittier Peninsula Properties, Columbus Recreation and Parks, Columbus, Ohio**

**Project Manager.** The purpose of the site screening was to review historical information and data related to environmental issues and concerns associated with the Peninsula properties, develop a site ranking system, and develop preliminary recommendations and costs for performing Phase II site investigation activities to identify potential impacts to the soils and groundwater at the Whittier Peninsula.

### **Phase II Environmental Site Investigation, Whittier Peninsula Properties, Columbus Recreation and Parks, Columbus, Ohio**

**Project Manager.** The Phase II ESI included field work, laboratory analysis, and reporting writing in accordance with the Ohio EPA Voluntary Action Program (VAP) rules and regulations. Field work included collection of soil samples using the Geoprobe® Direct-Push Technology and installation and sampling of groundwater monitoring wells. Prepared the report narrative text, tables, and drawings.

### **Preparation of Phase I Environmental Site Assessment, City of Columbus, Street Design Department, Columbus, Ohio**

Managed and provided QA/QC for a Phase I ESA of Short Street in Columbus, Ohio. Performed the Phase I ESA for the City of Columbus Street Design Department as part of the street-widening program. Used ASTM E1527-00 Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process in the performance and preparation of the Phase I ESA report.

### **Preparation of Phase II Environmental Site Investigation, City of Columbus, Street Design Department, Columbus, Ohio**

Managed and provided QA/QC for a site investigation performed at Reynolds Avenue in the City of Columbus, Ohio. Performed work for the City of Columbus Street Design Department as part of the street-widening program. The site investigation included the performance of Geoprobe holes to collect soil samples for laboratory analysis prior to initiation of construction activities. Prepared a Phase II Environmental Site Investigation Report presenting the results of the investigation and conclusions that no subsurface contamination was present within the construction limits.

### **Preparation of Phase II Environmental Site Investigation, City of Columbus, Street Design Department, Columbus, Ohio**

Managed and provided QA/QC for a site investigation at an intersection along Hudson Street in the City of Columbus, Ohio. The intersection was being modified to include turning lanes and Geoprobe holes were performed to collect subsurface soil samples. Performed work for the City of Columbus Street Design Department as part of the street-widening program.

**Phase II Environmental Site Investigation and Remediation, City of Columbus, Street Design Department, Columbus, Ohio**

Managed and performed QA/QC for a site investigation and remediation of a former dry-ice manufacturing facility along McKinley Avenue in Columbus, Ohio. The City of Columbus Street Design Department was widening McKinley Avenue. Used Geoprobe technology to collect subsurface soil samples for purposes of determining the presence of contamination within the construction limits. A former dry ice manufacturing facility, located along the revised road centerline, required remediation of an existing concrete vault prior to demolition to allow construction to proceed. Cleaned the vault by power washing and vacuuming with off-site disposal of the resulting sludge and rinsate waters.

**Compliance****Spill Prevention, Control, and Countermeasure Plan, The Ohio State University, Columbus, Ohio**

Performed the "five-year" review and evaluation of existing Spill Prevention, Control, and Countermeasure (SPCC) Plans for re-certification in accordance with the requirements of 40 CFR 112 as amended in December 2006 for The Ohio State University (OSU) in Columbus, Ohio. Reviewed, revised, and re-certified the Master SPCC Plan for the OSU main campus. Reviewed facility specific SPCC Plans, performed facility inspections, and revised the SPCC Plans using the "poster-format" with cross-references and supporting documents for four facilities within the OSU main campus: Center for Automotive Research, McCracken Power Plant, Transportation and Parking Services, and the Scarlet and Gray Golf Course. Also reviewed the SPCC Plan for the Wooster Campus of OSU in Wooster, Ohio, performed a site inspection, and prepared and certified the "poster-format" with cross-references and supporting documents.

**Integrated Contingency Plan (ICP), The Ohio State University, Don Scott Field, Columbus, Ohio**

Prepared an ICP for The Ohio State University Airport, Don Scott Field. Combined the existing Storm Water Pollution Prevention Plan (SWP3) and the existing SPCC Plan into one document that also included a new emergency response plan for the airport. The ICP addressed the onsite Avgas and Jet A aviation fuel storage facility, mobile aircraft refuelers, and two maintenance facilities resident on the airport property. Prepared the ICP in accordance with the National Interagency Incident Management System (NIIMS) Incident Command System (ICS) that is a nationally recognized system that provides a commonly understood framework that allows for effective interaction among response personnel, thus facilitating its ease of use during an emergency situation.

**Spill Prevention, Control, and Countermeasure Plan, Denison Hydraulics, Marysville, Ohio**

Prepared SPCC Plan to bring the Denison Hydraulics facility in compliance with the requirements of 40 CFR 112 for a specialty hydraulic equipment manufacturing facility in Marysville, Ohio. Prepared the SPCC Plan text, drawings, and appendices based on review of historic records, conversations with facility personnel, and site inspections. Served as the "Engineer-of-Record" for certification of the SPCC Plan.

**Spill Prevention, Control, and Countermeasure Plan, Koneta Rubber, Wapakoneta, Ohio**

Prepared SPCC Plans to bring two facilities in compliance with the requirements of 40 CFR 112 for a specialty rubber manufacturing facility in Wapakoneta, Ohio. Prepared the SPCC Plan text, drawings, and appendices based on review of historic records, conversations with facility personnel, and site inspections. Served as the "Engineer-of-Record" for certification of the SPCC Plans.

**Notice of Intent and Storm Water Pollution Prevention Plan, United Precast, Mount Vernon, Ohio**

Prepared and submitted the Notice of Intent (NOI) for a concrete manufacturing facility in central Ohio to provide coverage of the facility under the General Permit Authorization to discharge Storm Water Associated with Industrial Activity (General Permit No. OHR000003) Under the National Pollutant Discharge Elimination System (NPDES) as administered by the Ohio EPA. As a condition of the General Permit, prepared the SWP3 for the facility including a site walk over, material inventory, preliminary development of "Best Management Practices (BMPs)", certification of non-storm water discharges, and recommendations for implementing BMPs to minimize contact with storm water.



**Spill Prevention, Control, and Countermeasure Plan, Campbell Soup Company, Napoleon, Ohio**

Reviewed and revised existing SPCC Plan for re-certification in accordance with the requirements of 40 CFR 112 for a food manufacturing facility in Napoleon, Ohio. Prepared revisions to the SPCC Plan based on the site inspection and updated the existing plan to adhere to the revised SPCC Plan Rules and Regulations effective as of August 16, 2002.

**Spill Prevention, Control, and Countermeasure Plan, Lumi-Lite Candle Factory, Norwich, Ohio**

Reviewed and revised existing SPCC Plan for re-certification in accordance with the requirements of 40 CFR 112 for a candle manufacturing facility in Norwich, Ohio. Prepared revisions to the SPCC Plan based on the site inspection and updated the existing plan to adhere to the revised SPCC Plan Rules and Regulations effective as of August 16, 2002.

**Spill Prevention, Control, and Countermeasure Plan, Confidential Client, Bucyrus, Ohio**

Reviewed and revised existing SPCC Plan for re-certification in accordance with the requirements of 40 CFR 112 for a rubber and plastic hose manufacturing facility in Bucyrus, Ohio. Prepared revisions to the SPCC Plan based on the site inspection and updated the existing plan to adhere to the revised SPCC Plan Rules and Regulations effective as of August 16, 2002.

**Conditional No Exposure Exclusion for Industrial Activity, Delphi Automotive Systems, Warren, Ohio**

Performed site inspections and developed inspection forms for five automotive parts manufacturing facilities to determine compliance with the NPDES, Storm Water Phase II Final Rule – Conditional No Exposure Exclusion for Industrial Activity as administered by the Ohio EPA. Used the initial facility inspections to develop forms that the client could use to perform subsequent annual compliance inspections. Provided a summary of issues to be addressed prior to submitting Conditional No Exposure Exclusion requests to the Ohio EPA.

**Spill Prevention, Control, and Countermeasures Plan Re-Certification, Delphi Automotive Systems, Warren, Ohio**

Perform review, prepared revisions, and re-certified SPCC Plans in accordance with the requirements of 40 CFR 112 for a major automotive parts manufacturer in Northeast Ohio. Performed site inspections for two facilities, updated the SPCC Plans, and signed as the "Engineer of Record".

**Storm Water Pollution Prevention Plans, Delphi Automotive Systems, Warren, Ohio**

Performed site inspections, review of existing plans, and prepared required revisions of SWP3s for a major automotive parts manufacturer in Northeast Ohio. Reviewed and revised the SWP3s in accordance with the facilities General Permit Authorization to Discharge Storm Water Associated with Industrial Activity under the NPDES.

**Aboveground Tank Compatibility Certification, Yenkin-Majestic Paint Corporation, Columbus, Ohio**

Certified the compatibility of an aboveground storage tank (AST) for use in storing waste solvents in accordance with Ohio Administrative Code (OAC) Rules and Regulations, Chapter 3745-66-92. Certification included inspection of the AST including overflow and automatic shut-off controls, preparation of the certification report and submittal to the Ohio EPA.

**Storm Water/Surface Water Management**

**Design and Implementation of a "Class A" Trout Stream, Cerro Metal Products, Company, Bellefonte, Pennsylvania**

Managed the design and implementation of a "Class A" trout stream in central Pennsylvania. Lead, copper, zinc, and PCBs contaminated the stream banks and sediment. Modeled 20+ square mile drainage area utilizing SEDCAD 4 software for the design of riprap/gabion baskets to stabilize the stream banks, following excavation and off-site removal of the contaminated soils and sediments. Prepared contract documents, technical specifications, and construction drawings. Completed the project on a "fast track" schedule due to strict regulatory deadlines.

### **Evaluation of Sedimentation Basin at a Sanitary Landfill, Private Landfill in Minnesota**

Prepared the evaluation of an existing sedimentation basin at a sanitary landfill utilizing SEDCAD+ computer software. Modeled the watershed for the basin and added 1000 GPM of inflow from a groundwater recovery/treatment system. Treated the basin as an infiltration structure, which saved the client \$200,000 by not having to construct a second basin to handle water from the groundwater recovery/treatment system.

## **Abandoned Mine Lands and Mining**

### **Acid Mine Drainage, Investigation and Remedial Design, Meigs County, Ohio, Ohio Department of Natural Resources, Columbus, Ohio**

Managed the investigation and remedial design for acid mine drainage (AMD) from old underground mine openings in Meigs County, Ohio. Basements of houses located within 30- to 50-feet of the toe of the slope were flooding during rainfall events due to saturation of the soils caused by AMD from the mine openings. Resealed the openings and employed an underdrain system to drain the back yards of the houses and former mine openings. Designed the underdrain system and constructed taking into account the proximity of the toe of the slope and the need to protect the integrity of the slope by preventing slope failure. Technical specifications and drawings were prepared in accordance with the Ohio Department of Natural Resources (ODNR) protocols.

### **Reclamation and Surface Erosion Remediation, Gallia County, Ohio, Ohio Department of Natural Resources, Columbus, Ohio**

Managed the reclamation and surface erosion remediation at an abandoned mine land site in Gallia County, Ohio. The reclamation design involved the regrading of the site, including highwall and slope reduction to minimize future potential surface erosion problems. Developed technical specifications, prepared in accordance with the ODNR protocols, grading plans, and surface water control plans, in a format suitable for contractors to perform the reclamation work.

### **Mine Reclamation and Surface Erosion Remediation, Gallia County, Ohio, Ohio Department of Natural Resources, Columbus, Ohio**

Managed the reclamation and surface erosion remediation at an abandoned mine land site in Gallia County, Ohio. The reclamation design involved the regrading of the site, including highwall and slope reduction to minimize future potential surface erosion problems. The grading plans were required to incorporate access to an active natural gas well located on the site. Developed topsoil borrow area plans (from adjacent undisturbed properties), including sampling plans, volume estimates, grading plans, and surface water control plans. Developed technical specifications, prepared in accordance with the ODNR protocols, grading plans, and surface water control plans, in a format suitable for contractors to perform the reclamation work.

### **Reclamation Design for Control of Acid Mine Drainage, Peabody Coal Company, St. Louis, Missouri**

Prepared the reclamation design for control of AMD from an old abandoned auger mining pit in Missouri. AMD from the auger pit was flowing into the Clairton River and causing discoloration problems. The reclamation design included the construction of a sedimentation basin at the mouth of the valley leading from the old auger pit and prior to entering the river. Sedimentation basin outfall was a corrugated pipe down the slope to the river to minimize potential surface erosion attributed to the outfall.

### **Mine Plans and Reclamation Plans for Two Large Coal Mines, Powder River Coal Company, Bill, Wyoming**

Prepared mine plans and reclamation plans for two large coal mines in Wyoming (6,000,000 tons/year and 8,000,000 tons/year). Plans included sequencing of strip pits, overburden handling, backfill, and grading plans. Storm water management included design of sedimentation basins, diversion ditches, containment berms, and ditches.

### **Permit Revisions to an Existing Mine Plan, Powder River Coal Company, Bill, Wyoming**

Managed the preparation of permit revisions to an existing mine plan to include the construction of a concentric loop track, silo, slot storage, and conveyor system for increased coal handling, storage, and loading capacity. Following approval of the permit revision, managed the preparation of technical specifications and

construction drawings for the required facility upgrades, the bidding and contractor procurement activities, and construction oversight activities throughout the construction of the project.

**Underdrain System to Control Groundwater Flow at a Mine in the Rocky Mountains, Peabody Coal Company, Denver, Colorado**

Designed an underdrain system to control groundwater flow beneath backfilled overburden at a mine in the Rocky Mountains. The underdrain allowed mining of the coal seam from the bottom of the mountain to the top, instead of contour mining, which increased the amount of recoverable coal. Used the slope stability program REAME developed by the University of Kentucky to aid in the design and backfill placement of underdrain materials and overburden to create a stable backfill as part of the reclamation.

**Major Channel Relocation/Remediation, Powder River Coal Company, Bill, Wyoming**

Participated in the design, material handling, stockpiling, and backfilling of a major channel relocation/remediation. During the early stages of opening a new mine, relocated a major creek to allow for maximum recovery of the coal seam. As the creek was being stripped, selectively handled and stockpiled the material comprising the creek, i.e., sands, gravels, etc., for reconstruction during the reclamation process for this area. Following coal removal, reconstructed the stream in its former location, with each lithologic unit replaced to recreate the stream before mining events took place.

**Publications**

"Construction and Demolition Debris Rules in Ohio," Concrete Connection, Ohio Ready Mixed Concrete Association (ORMCA), November 1998

"Simplifying Environmental Planning Requirements," FOUNDRY Management & Technology, pp. 20-23, April 1999.



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Elena R. Goodhall, P.E.

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## Experience Summary

Elena Goodhall is an Associate and Project Manager with 16 years of experience in landfill environmental management and environmental remediation. For the five years prior to coming to Brown and Caldwell, she was the Ohio Environmental Manager and Regional Environmental Manager for Republic Services Inc. (Republic, formerly Allied Waste Services, Inc.). Ms. Goodhall began with Allied Waste as an Environmental Manager in Ohio and has successfully developed an excellent relationship with all levels of Ohio EPA personnel. As Regional Manager, Ms. Goodhall addressed compliance, engineering, and construction issues for the region and developed and implemented leachate tracking logs; soil tracking, soil usage and tonnage policy; and aerial calculation review procedures for the region. Ms. Goodhall has successfully handled environmental permitting, including solid waste and air permits-to-install and zoning and wetland permitting. She also obtained the first and second Director's Exemptions granted in Ohio for siting landfills over 100-gpm aquifers. Ms. Goodhall has served in an engineering and management role on landfill construction and development projects, including waste relocation, cell construction and expansion, landfill gas and leachate management systems, and hazardous waste landfill management. Ms. Goodhall also served as lead Compliance and Quality Assurance manager and lead Liner Manager on several construction and development projects. Her landfill management experience includes groundwater monitoring programs, stormwater management programs, and the development of emergency action plans. Prior to her solid waste work for Republic, Ms. Goodhall had 10 years of experience investigating hazardous waste and brownfield sites, developing corrective actions, and overseeing the implementation of corrective measures at numerous sites in California, Michigan, and Ohio.

### Assignment

*Project Manager*

### Education

(b) (6)

### Registration

*Professional Engineer, Michigan*

### Certifications

*40-hour HAZWOPER with current  
8-hour Refresher*

*First Aid and CPR Training*

*Nuclear Densometer Gauge  
Certification*

### Experience

*16 years*

### Joined Firm

*2009*

### Relevant Expertise

- *Solid Waste Facility Design and Construction*
- *Hazardous Waste Management*
- *Brownfield Redevelopment*

### Countywide Recycling & Disposal Facility Isolation Break, Gas System, and Leachate Construction Quality Assurance (CQA) Services, Republic Services, Inc., East Sparta, Ohio

**Project Manager.** Managed the oversight and documentation for this United States Environmental Protection Agency (USEPA) required project to create complete separation between the 88-acre remediation area and the remainder of the cells at the Facility. This project was necessary due to a chemical reaction that is believed to be attributed to aluminum dross waste that the facility historically received. The project involved the installation of 52 landfill gas wells and associated headers and laterals, relocation of the site flares, installation of 24 acres of high-density polyethylene (HDPE) geomembrane, construction of 2 pump stations and complete isolation of the remediation leachate system. To document this work 4 separate certification reports were required due to various regulatory drivers. The facility's Division Manager commended Ms. Goodhall on how she took care of the client at this facility and dealt with the ever-changing staffing needs during the course of this 9-month long project

### Lorain County Landfill Gas Construction Drawings and CQA Services, Republic Services, Inc., Oberlin, Ohio

**Project Manager** for the development of landfill gas construction drawings for this facility and the related construction quality assurance for the project. This project involved the installation of additional gas wells, header and lateral piping, isolation valves and the second enclosed flare for the facility.

### County Environmental of Wyandot Landfill, Gas Construction Drawings and CQA Services, Republic Services, Inc., Carey, Ohio

**Project Manager** for the development of landfill gas construction drawings for this facility and the related construction quality assurance for the project. This project involved the installation of additional gas wells, header and lateral

piping, air and force main piping and the 2nd utility flare for the facility.

**Cherokee Run Landfill, Gas Construction Drawings and CQA Services, Republic Services, Inc., Bellefontaine, Ohio**

**Project Manager** for the development of landfill gas construction drawings for this facility and the related construction quality assurance for the project. This project involved the installation of additional gas wells and additional header and lateral piping. In addition, BC provided oversight of repair work to the site's utility flare condensate sump and associated piping.

**Conestoga Landfill, Allied Waste, Inc., Pennsylvania**

**Environmental Manager and Construction Manager.** Managed a 22-acre time-critical cell construction project, initiated in 2008. Numerous challenges were encountered and successfully overcome during construction in early spring, and the cell was certified in time to prevent waste diversion to another facility. Ground water seeps encountered in the cell floor required redesign in the field. Responsible for pursuing and obtaining permit modifications, saving the facility approximately \$4,000,000. After the merger between Allied Waste and Republic Services, she continued to provide construction management services to the facility on their 2009 17-acre time critical cell construction involving 500,000 CY of structural fill placement.

**Gas System Assessments, Republic Services, Inc., Nationwide**

**Project Manager and Assessor.** Conducted landfill gas system assessments at 14 Republic landfills to determine compliance Republic's national Standard Operating Procedures for Landfill Gas Operations and Maintenance. These assessments involve a thorough review of landfill gas monitoring data, reporting, and maintenance followed by recommendations to the facility on how to improve the implementation of the SOP and the operations of the gas system.

**Allied Waste Services, Inc., Erie, Michigan**

As a **Regional Environmental Manager** for Allied Waste Services, responsible for the regional management of landfill capital, closure and post-closure budgets, landfill development and construction, environmental compliance, and facility expansions for the 27 active landfills, 36 closed landfills, two closed hazardous waste landfills, 44 transfer stations/recycling stations and 62 hauling companies located in the Northeast and Eastern regions of the United States. Also developed and implemented regional initiatives to conduct training sessions for environmental managers, operations personnel, and consultants.

In this role, accomplished several key activities including:

- Developing and implementing leachate tracking log spreadsheets for 35 active landfills,
- Drafting and enforcing regional soil tracking, soil usage, and non-deplete tonnage policies,
- Developing, implementing and reviewing aerial calculation review spreadsheets for 35 landfills.

**Lorain II and Lorain I Landfills, Allied Waste Services, Inc., Oberlin, Ohio**

**Engineer.** Completed a 20-acre closure project and substantial gas system improvements to address odor complaints at the Lorain County II Landfill. At Lorain I, completed engineering oversight on a cap improvement project to minimize infiltration and leachate generation from this landfill. Also, completed installation of combination gas wells and publically owned treatment works (POTW) projects involving leachate collection and disposal systems.

**County Environmental of Wyandot Landfill, Inc., Allied Waste, Inc., Carey, Ohio**

**Engineer.** Managed the relocation of approximately 1.4 million cubic yards of waste from an unlined portion of the facility to the lined portion of the facility. This waste relocation was successful in reducing the groundwater impacts identified at the facility.

**Celina Sanitary Landfill, Allied Waste, Inc., Celina, Ohio**

**Engineer.** Efforts resulted in successful expansion of the Celina Sanitary Landfill, adding nine years of site life to the facility. This work included obtaining a host agreement, a zoning permit, solid waste and air permits-to-install, and the first Director's exemption for siting a landfill over a 100-gpm aquifer granted in Ohio.

**Cherokee Run Landfill, Allied Waste, Inc., Bellefontaine, Ohio**

**Engineer.** Responsible for the successful expansion of Cherokee Run Landfill, adding 10 years of site life to the facility. This work included obtaining solid waste and air permits-to-install, and the second Director's exemption for siting a landfill over a 100-gpm aquifer granted in Ohio.

**Noble Road Landfill, Allied Waste, Inc., Shiloh, Ohio**

**Engineer.** Responsible for the continued pursuit of a vertical expansion, including design completion, hydrogeologic investigations, and wetland and air permitting. Permit to install (PTI) approval is expected in March 2009. Managed the permitting, design, construction, and startup of the gas system at Noble Road Landfill, which recently triggered regulatory requirements for an active gas system.

**Celina and Cherokee Landfills, Allied Waste, Inc., Ohio**

**Engineer.** Responsible for the continued pursuit of two lateral expansions, including design completion, hydrogeologic investigations, and wetland, air, and zoning permitting.

**Landfill Construction, Allied Waste, Inc.**

**Engineer.** Managed landfill construction projects, including eight cells, three caps, ten landfill gas systems, two flare installations, and three leachate system improvements. Three of these were time-critical off-season cell construction projects. As Ohio District Engineer, responsible for the permitting, construction, and compliance for six active landfills, three closed landfills, seven transfer stations, and two recycling facilities. In this role, she completed landfill expansions and construction projects, and delivered cost savings and improvements to several landfill sites.

**Type III Landfill Cell Redesign, Construction, and Interim Cover Staking Plan, CEMEX, Inc., Charlevoix, Michigan**

**Technical Lead and Certifying Engineer.** Served as Technical Lead for this 8-acre cell construction for a cement kiln dust landfill that is located just north of CEMEX's limestone quarry on Lake Michigan. Responsible for a fast-track redesign of the Phase II cell due required by verification surveying revealing that the quarry wall had been mined 150 feet into the Phase II cell area. The redesign was accomplished while the contractor continued onsite work, with no resulting downtime. Also served as the Lead Liner during installation of the geosynthetic clay liner and 60-mil HDPE geomembrane.

**Fort Gratiot Type II Landfill Remedial Design, Michigan Department of Environmental Quality, Port Huron, Michigan**

**Technical Lead, Engineer of Record.** Served as Project Manager for remedial activities at this 18-acre Part 201 Landfill. These activities included installation of a passive landfill gas venting control system, geosynthetic cover system, storm water controls, and leachate control system. Also served as Lead Liner during installation of the 40-mil linear low-density polyethylene (LLDPE) geomembrane and geocomposite layer.

**Gratiot County Landfill Cap Repair and Emergency Methane Corrective Action, Michigan Department of Environmental Quality, Gratiot County, Michigan**

**Project Manager** for remedial activities at this 42-acre landfill containing municipal and industrial waste including polybrominated biphenyl wastes. Identified methane concentrations in the explosive range at the property boundaries, developed design of an emergency corrective action, and coordinated monitoring of the corrective action. Also responsible for the coordination of quarterly groundwater sampling associated with the operating groundwater extraction treatment system, and supervising cap repairs that were necessary due to differential settlement.

**Tobico Marsh State Game Area Landfill Characterization Survey and Decommissioning Plan, Michigan Department of Natural Resources, Kawkawlin Township, Michigan**

Responsible for the completion of the radiological characterization survey and decommissioning plan in pursuit of the termination of the client's Nuclear Regulatory Commission license at a three-acre low-level radioactive waste landfill. Served as Field Operations Leader during the six-month site characterization field work, that was completed in Level B PPE with radiological controls.



**Citizens Disposal Landfill Peat and Marl Removal, Cell Excavation, and Berm Construction, Allied Waste, Inc., Grand Blanc, Michigan**

**Project Manager and Certifying Engineer** for the removal of a non-regulated wetland within the footprint of the landfill, as well as cell excavation and berm construction.

**Former Eaton Transmission Facility Brownfield Redevelopment, Michigan Department of Environmental Quality, Kalamazoo, Michigan**

**Technical Lead.** This demolition project involved a 645,000-sq. ft. former transmission facility. Served as the Field Operations Leader during the pre-demolition sampling event, which involved coordinating activities for two sampling crews and two Geoprobe® rigs across the 50-acre site. Also coordinated the preparation of the demolition bid specifications and assisted the client during the procurement process for the demolition Trade Contractor. Acted as a liaison between the client and the contractor, monitoring compliance with contract specifications, reviewing and negotiating change orders, and reviewing and approving payment requests and associated documentation.

**Welcome Center for Ambassador Properties Brownfield Redevelopment, Michigan Department of Environmental Quality, Detroit, Michigan**

**Technical Lead.** This Brownfield project encompassed nearly 200 residential and commercial lots that were proposed for development as a Michigan Department of Transportation (MDOT) Welcome Center. Developed the Focused Feasibility Study for the parcels identified as Michigan Part 201 facilities, coordinated additional sampling at the site to determine the boundaries of the area to be excavated, and prepared of bid specifications for the contaminated soil removal. Provided construction oversight services during the soil removal.

**Toledo Tie Treatment Site, Kerr-McGee Corporation, Toledo, Ohio**

**Project Engineer.** Supervised construction quality control and documentation of all field activities for a \$7 million Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) directed, time-critical removal action. Negotiated with regulators during the implementation of the time critical removal action, and designed appropriate engineering controls to mitigate remaining contamination.

**Miscellaneous Solid Waste Landfills in Michigan and Ohio**

**Design Engineer** for several landfill sites throughout Michigan and Ohio. Responsibilities included:

- Performing landfill construction quality assurance during geosynthetic liner installation,
- Designing landfill staking plans and landfill stormwater improvement projects,
- Preparing landfill construction documentation reports, and
- Performing engineering calculations required for landfill permit applications.

**U.S. Army Forces Command Installation Restoration**

**Program Support Manager.** Developed and analyzed Forces Command's Cost to Complete Budget totaling \$550 million. Developed 26 Installation Action Plans to address 5,000 former hazardous waste disposal sites. Provided technical and program support to 28 Installation Restoration Project Managers.

**Fort Irwin Installation Restoration, California**

**Program Manager.** Investigated former hazardous waste disposal sites at Fort Irwin, a 1,000 square mile installation. Managed over \$14.5 million of Defense Environmental Restoration Program funds. Negotiated with various California regulatory agencies on behalf of Fort Irwin and the U.S. Army. Developed and implemented the Installation Action Plan. Implemented the Community Relations Plan for the Installation Restoration Program. Coordinated the field work for site inspections, remedial investigations, and remedial actions.

**Bridge Scour Analyses, Michigan Department of Transportation, Various Michigan Sites**

Performed 160 Level I and 37 Level II Bridge Scour Analyses. These included developing cross sections of the river upstream and downstream of the bridge, calculating the depth of scour, comparing to bridge foundation depth, and determining if corrective actions are required.

**Vandevenne Drain Improvements, City of New Baltimore, Michigan**

Modeled the existing conditions using HEC-2 program and designed improvements to the drain cross section to facilitate additional development in the area.

**Rouge River Valley Combined Sewer Overflow (CSO) Study, Southeast Michigan**

Evaluated proposed surface water monitoring locations, installed sampling equipment, and conducted sampling events during rain events. Also conducted CSO studies for Michigan municipalities.

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Erik G. McPeck, P.E., LEED G.A.

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## Experience Summary

Erik McPeek is a civil engineer with Brown and Caldwell. He brings 6 years of experience in environmental and civil engineering related projects. His experience encompasses areas of site remediation, solid waste and other projects related to environmental services. Since joining Brown and Caldwell, Mr. McPeek has been involved with remediation projects, groundwater monitoring, design and as-built certification drawings, and has served as an on-site field engineer for several construction projects.

### Assignment

Field CQA Inspector

### Education

(b) (6)

### Registration/Certification

Registered Professional Engineer,  
Ohio (2009)

Registered LEED Green Associate  
(2009)

Radiation Safety Officer

HAZWOPER Site Supervisor

### Experience

5 years

### Joined Firm

2006

## Remediation Experience

### Altus Air Force Base, Air Force Center for Engineering and the Environment (AFCEE), Altus, Oklahoma

**Project Engineer.** Project activities include performance evaluation of an injection to an existing mulch biowall at Altus Air Force Base, which was installed to assist in the degradation of a chlorinated solvent plume. Assisted with work plan write-up, development of a method for amendment injection to the biowall, assisted with estimate project costing and scheduled time-line for completion of project scope. Currently acting as Task Lead for project implementation and completion.

### Air Force Plant 4, AFCEE, Fort Worth, Texas

**Project Engineer.** Project activities include performance assessment of an existing permeable reactive barrier (PRB) at Air Force Plant 4. Assisted in cost estimation, historic analytical review, and planning of on-site investigation activities. Performed baseline water level readings and groundwater sampling of the PRB transect for geo-chemical parameters, as well as VOC analysis. Assisted with estimate project scheduled time-line for completion of project scope. Currently acting as Task Lead for project implementation and completion.

### Hill Air Force Base, AFCEE, Salt Lake City, Utah

**Project Engineer.** Project activities include performance monitoring of an air sparge system that will be installed to evaluate the remediation of MTBE/TCE co-mingled plume on base property. Assisted with work plan development, determination of methodology for air injection performance monitoring, subcontractor allocation, and plan for project scope completion. Currently acting as Task Lead for project implementation and completion.

### Laboratory Testing Protocol, AFCEE

Assisted in the development of a laboratory testing protocol for pre-screening natural attenuation enhancement (NAE) products. The intent of this protocol is to allow for bench-scale laboratory testing to simultaneously test multiple NAE products in order to demonstrate their effectiveness for several established and emerging contaminants.

### Grenada Stamping Plant Site, ArvinMeritor, Grenada, Mississippi

**Project Engineer** for this site-monitoring project. Involvement includes organizing and implementing monitoring events that entail semi-annual groundwater and surface water sampling, LNAPL recovery, IDW waste management, performance monitoring for the onsite Zero Valent Iron (ZVI) PRB, and analytical data review including reporting to the MDEQ on behalf of the client.

### Grenada Lake Closed Landfill, ArvinMeritor, Grenada, Mississippi



**Project Engineer** for this site-monitoring project. Involvement includes organizing and implementing monitoring events that entail annual groundwater sampling, IDW waste management, and analytical data review including reporting to the MDEQ on behalf of the client.

**Lagoon Closure Design, Arvin Meritor, Grenada, Mississippi**

**Project Engineer.** Worked with a supervising engineer to design the layout and details associated with a Lagoon closure final cover system. This included generating surfaces for volumes and cross-sections using AutoCAD Civil3D software. Also aided in assembling the bid documents for contractor estimation.

**Meritor Heavy Vehicle Systems, Arvin Meritor, Heath, Ohio**

**Project Engineer.** Currently providing assistance in the bioremediation and extraction of LNAPL plumes at an ongoing project. Responsibilities included O&M of LNAPL extraction systems, product thickness monitoring, and recovery system modification for oil extraction optimization.

**Pfizer Barrier Wall Design, Pfizer, Holland, Michigan**

**Project Engineer.** Worked with a supervising engineer to design the layout and details associated with an underground barrier wall. This included geologic cross-sections and generating surfaces for volumes and cross-sections using AutoCAD Civil3D software.

**The Ohio State University Airport, Columbus, Ohio**

**On-Site Field Engineer.** Performed storm water sampling for requirements associated with the client's NPDES permit. Collected samples using automated storm water samplers to collect samples during a storm event meeting certain duration and intensity criteria.

**Altivity Packaging, Altivity, Carol Stream, Illinois**

**On-Site Field Engineer.** Performed field oversight of soil investigation activities, which included sample collection by geo-probe in order to locate potential remedial action locations in the area of a former UST. Also oversaw the excavation of potential contaminated material and performed soil sampling in the boundary of the remediated area.

**Various Projects, Delaware County, Ohio**

**Engineering Intern.** As an engineering intern for Delaware County in the Sanitary Engineers Department, Mr. McPeek was responsible for the following:

- Study of the sewer master plan for the villages within the county suspected of pollution.
- Using geographic information system (GIS) applications and AutoCAD to conduct studies and perform general work.
- Collecting surface water samples and conducting fecal coliform testing.

## **Solid Waste Experience**

**Noble Road Berm Design, Shiloh, Ohio**

**Project Engineer.** Worked with a supervising engineer to design the layout and details associated with a landfill berm design. The large size and location within the landfill were unique to this project, as it will serve as support for vertical expansion of the landfill. This work included generating surfaces for volumes and cross-sections using AutoCAD Civil3D software.

**Landfill Gas Control and Collection System Construction Drawings, Republic, Ohio**

**Project Engineer.** Worked with a supervising engineer to design the layout and details associated with several landfill gas collection systems for construction in 2009. This work included reviewing the landfills' operating permit and review of existing site conditions and topography in order to update the gas plans for best constructability.

**Lorain County I Landfill Leachate Sampling, Lorain County, Ohio**

**On-Site Field Engineer.** Conducted sampling activities for leachate generated at this closed landfill. As part of this monthly sampling event a 24-Hour composite sample is collected using an auto sampler, grab samples are

also collected. Leachate samples were then split with the County's WWTP laboratory and sent to a third party laboratory for analysis.

#### **Countywide Landfill, Republic Waste Services, Stark County, Ohio**

**On-Site Field Engineer.** Provided oversight for an isolation break and FML installation that was designed to halt an internal landfill reaction caused by Alum Dross that was previously placed in the landfill. This was a high profile project with a rushed schedule. The landfill was under a consent order from the EPA to complete the work in a short amount of time with high quality expectations.

#### **Landfill Leachate Tank Facility, Lorain County, Ohio**

**On-Site Field Engineer.** Worked with a supervising engineer to design the layout and details associated with a new leachate collection tank facility. Submitted an Alteration Request to the landfill's operating PTI to the Ohio EPA for construction of the new tank facility. Also aided in the preparation of bid documents, drawings for construction, and some of the on-site field CQA work.

#### **New Solid Waste Landfill Cell, Carey, Ohio**

**On-Site Field Engineer.** Served as an onsite field engineer for the construction of a new 9-acre cell. The new cell construction included the installation of structural fill, added geologic material (AGM), recompacted clay liner, geomembrane, leachate collection system, and associated activities. Performed the project under a very compressed schedule to meet an emergency need of the client. Responsible for on-site field monitoring, which included installation of the landfill liner system and leachate collection system, to assure that the new cell was constructed in accordance with the design plans and technical specifications.

#### **Sanitary Landfill Vertical Expansion, Celina, Ohio**

**On-Site Field Engineer** for the construction of an 8.5-acre vertical expansion cell. Construction activities included placement of structural fill, recompacted soil liner, and a leachate collection system. Responsible for on-site field monitoring of soil placement, periodic groundwater measurements to monitor the affect of well pumping activities, and preparation of the certification report including As-Built drawings. During construction of the vertical expansion cell, field conditions revealed several variances in the design parameters determined by the designing consultant. Due to these variances, worked with his supervising engineer as well as the client and the contractor to assure that the project schedule remained intact and all construction activities met technical specifications and satisfied the regulatory agencies requirements.

#### **Vertical Expansion Investigation, Allied Waste, Celina, Ohio**

**Project Engineer.** Performed an engineering review for a landfill in Ohio that included a review of another consultant's construction plans, the landfill's operating permit, and existing site conditions. Performed the review to evaluate the actual remaining vertical expansion area for the landfill against the area estimated by another consultant. This review resulted in proof that the other consultant over estimated the area remaining for vertical expansion. This conclusion allowed the landfill to make beneficial changes to their construction schedule outlook.

#### **Lorain County I & II Landfills, Lorain County, Ohio**

**On-Site Field Engineer.** Provided CQA oversight for the installation of a landfill gas extraction system. This included HDPE pipe installation, extraction pipe fusion welding installation, pipe pressure testing and collection sump installation. After completion of the project, assisted in preparing the Certification Report(s).

#### **Miscellaneous Landfills, Various Clients, Ohio**

**Construction Inspector.** Prior to joining Brown and Caldwell, served as a construction inspector for several landfill sites in Ohio. Responsible for daily quality control inspections including nuclear density testing, synthetic materials inspection, and observation inspection.

Project sites included the following:

- Lorain II County Landfill, BFI, Oberlin, Ohio
- Waste Management Landfill, New Springfield, Ohio
- FGD Landfill, American Electric Power Company, Conesville, Ohio

### **Additional Experience**

- Using AutoCAD on site plans, plan sheets, survey data, flood inundation maps and geological information.
- Preparing quantity reports for proposed and designed projects.
- Providing field experience, including compaction testing.
- Performing lab analysis of soils and concrete.

### **Software**

- ArcGIS
- AutoCAD Civil 3D
- Surfer
- MatLAB
- MathCAD
- HEC RAS
- SAP2000

### **Memberships**

American Society of Civil Engineers (ASCE)

Water Management Association of Ohio (WMAO)

### **Publications/Presentations**

"3D Spatial Analysis by GIS for Bedrock and Ground Water". Erik McPeek, Brown and Caldwell and Dr. Tiao J. Chang, Ohio University. Water Management Association of Ohio (WMAO) Conference. 2008

Nathan A. Givens, E.I.

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## Experience Summary

Nate Givens recently joined Brown and Caldwell as an Engineer I in Solid Waste. Mr. Givens has over fourteen years of experience in construction. His experience includes construction of surface and subsurface drainage systems, wetlands, stormwater detention basins, underground utilities and roadways. He brings exceptional attention to detail, proven understanding and is driven to provide quality services.

### Assignment

Field CQA Inspector

### Education

(b) (6)

### Registration

Engineer Intern, Ohio

### Experience

14 years

### Joined Firm

2010

### Relevant Expertise

- Hydraulics & Hydrology
- Water & Wastewater Treatment
- Construction Quality Assurance
- Field Testing
- Soil and Groundwater Sampling

### 2010 Temporary Closure, Imperial Landfill, Republic Services, Inc., Imperial, Pennsylvania

**CQA Technician.** Duties included observation, documentation and testing of Interim Cap Gas Collection and Control System (GCCS) and forty acres of geotextile and 40-mil high-density polyethylene (HDPE) geomembrane. Observed construction of surface water channels, surface water culverts and sedimentation basins.

### 2010 Landfill GCCS, Imperial Landfill, Republic Services, Inc., Imperial, Pennsylvania

**CQA Technician.** Observed and documented installation of 31 vertical gas extraction wells and GCCS piping.

### 2010 New Cell Construction, Imperial Landfill, Republic Services, Inc., Imperial, Pennsylvania

**CQA Technician.** Provided oversight and daily documentation on the construction of a 3.8-acre, dual-lined solid waste disposal cell.

### Site Closure Activities – Historical Document Review, Confidential Client, Ohio

**Document Reviewer.** Reviewed 20+ years of historical documents related to closure activities for the site. Attributed the client provided documents by document type, date, author and subject making them easily retrievable for future use. Also entered historical analytical data into spreadsheets, so that we could begin trending.

### Landfill Gas Pipeline CQA, Lorain Landfill, BFI, Inc., Oberlin, Ohio

Monitored the installation of 18- and 24-inch headers. Documented installation of valves and a new sump. Observed dual extraction well pumps for proper function.

### Sludge Lagoon Closure CQA, ArvinMeritor, Inc., Grenada, Mississippi

**Field CQA Inspector.** Duties included observation and documentation of the installation of the vegetative soil cover component of the final cover system for the closure of a former sludge lagoon. Responsibilities also included providing direction to the contractor for expansion of the onsite soil borrow area.

### Residential Land Development

**Senior Designer.** Designed a residential subdivision, requiring knowledge of boundary and topographic surveying, lot layout, pavement design, grading plan development, storm and sanitary sewer design, detention pond design and municipal code.

### Putnam/Gunkelman Drainage Project, Frankfort, Ohio

**Designer.** Designed and installed systematic subsurface drainage consisting of approximately fifteen miles of corrugated plastic tubing.



**Kensington Residential Subdivision and Rosewood Villas Residential Subdivision, Chillicothe, Ohio**  
Project Superintendent and Heavy Equipment Operator during construction of streets and stormwater detention basins.

Brian E. Jones, P.E.

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## Experience Summary

Brian Jones has 15 years of experience in environmental engineering and consulting providing a full range of environmental engineering and investigative services. Brian's strong project management and leadership skills have allowed him to serve in various capacities on multiple projects including preparation and implementation of soil and groundwater investigation work plans, remedial action plans and designs, and on-site construction management including coordination with contractors and waste disposal. He has also served as project manager on due diligence audits (Phase I and Phase II Assessments) related to real property transfers and underground storage tank removals, investigations and corrective actions.

### Assignment

Field CQA Inspector

### Education

(b) (6)

### Registration

Arkansas (12355) 2005

Mississippi (17201) 2006

Tennessee (105313) 2003

### Experience

15 Years

### Joined Firm

2005

### Training

OSHA 40 Hour HAZWOPER

D.O.T. Shipping Hazardous  
Materials

Basic Orientation Plus

TWIC

### Relevant Expertise

- Site Remediation
- Site Investigations
- Construction Management
- Phase I ESA

### Groundwater Remediation, Confidential Client, Mississippi

**Project Manager.** Provide operation and maintenance services on a groundwater treatment system for chlorinated compounds. Upgrade groundwater treatment system operations with new equipment and software. (2010)

### Soil and Groundwater Remediation, Magnetek, Goodland, Indiana

**Project Manager and Field Engineer.** Remediation of soil and groundwater contaminated with chlorinated compounds. Remediation was performed by the removal of a sediment trap system and associated soils. Project management included contractor coordination, waste disposal, and interaction with the State Agency. Further groundwater remediation was performed by the injection of hydrogen release compound (HRC®) to implement in-situ enhanced bioremediation. Post remedial action activities include groundwater monitoring. (2005 to Present with remediation by excavating the sediment trap in October 2008 and HRC injections in August 2009)

### Soil and Groundwater Remediation, Magnetek, Mendenhall, Mississippi

**Project Manager and Field Engineer.** Remediation of petroleum contaminated soil at an industrial facility. Remediation consisted of excavation and off-site disposal of more than 700 tons of soil. Remediation access required the disassembly and relocation of two buildings of a former above-ground storage tank concrete containment area. Pre-existing conditions were restored at the end of the project. Project Manager for post remedial action activities including soil and groundwater monitoring of chlorinated compounds and petroleum hydrocarbons, and interaction with the State Agency. (2005 to Present with remediation by excavation occurring in November 2005)

### Soil and Groundwater Remediation, Magnetek, New Orleans, Louisiana

**Project Manager and Field Engineer.** Prepared remedial action plan to address impacts to soil and groundwater from chlorinated compounds and petroleum hydrocarbons from historical releases associated with a former electric transformer and electric motor refurbishing operation. Field Engineer for the implementation of the remedial action plan which included excavation of contaminated soil in three areas. One excavation area was located at the interior of a building. Project Manager for post remedial action activities including soil and groundwater monitoring and interaction with the State Agency. (2005 to Present with remediation by excavation occurring in February 2006)

**Soil and Groundwater Remediation, FedEx Corporation, Memphis, Tennessee**

**Project Manager.** Evaluation of remedial alternatives and remedial design for a former vehicle fueling facility with petroleum impacted soil and groundwater. Perform soil and groundwater monitoring to meet State Agency requirements. (1995 to Present)

**Soil Remediation, Confidential Client, West Memphis, Arkansas**

**Field Engineer.** Remediation of petroleum contaminated soil at a manufacturing facility. Remediation consisted of excavation and off-site disposal of more than 3,000 tons of soil adjacent to a building, tanks, railroads, and roadways. (2005)

**UST Removal and Site Investigation, DHL, Franklin Park, Illinois**

**Project Manager and Field Engineer.** Removal of a petroleum underground storage tank system. The removal resulted in remediation through over excavation and a site investigation was performed. The site received a No Further Action (NFA) status from the Site Agency. (2007 to 2008)

**UST Removal, FedEx Corporation, Garland, Texas**

**Project Manager and Field Engineer.** Removal of a petroleum underground storage tank system. Project management included securing contractors, waste disposal, and interaction with the State Agency. The site received a No Further Action (NFA) status from the State Agency. (2006)

**UST Removal and Site Investigation, Memphis-Shelby County Airport Authority, Tennessee**

**Project Manager and Field Engineer.** Removal of a petroleum underground storage tank system. The removal resulted in remediation through excavation and a site investigation was performed. Project management included contractor coordination, waste disposal, and interaction with the State Agency. The site received No Further Action (NFA) status from the State Agency.

**Site Investigation, Harcros Chemicals, Memphis, Tennessee**

**Project Manager.** Baseline site investigation of a chemical handling/distribution facility. Baseline site investigation activities included soil borings, monitoring well installations, and ground penetrating radar. (2009 to Present)

**Site Investigation, FedEx Corporation, Memphis, Tennessee**

**Project Manager.** Site investigation of the active underground hydrant fuel system located at the Tennessee Air National Guard (TANG) facility on Memphis International Airport property. Project management included coordinating with contractors and field personnel as well as waste disposal. (2008)

**Site Investigation, FedEx Corporation, Memphis, Tennessee**

**Project Manager.** Site investigation related to an aircraft crash that resulted in the release of petroleum onto Memphis International Airport property. (2006)

**Chemical Plant Closure, Confidential Client, Alvin, Texas**

**Tank Farm Project Manager.** Preparation of technical procedures for the decontamination of above-ground storage tanks with residual petroleum products. Coordinate with contractors in procurement phase. (2010)

**Groundwater Monitoring, Confidential Client, Lakeland, Florida**

**Field Engineer.** Installation of groundwater monitoring wells using sonic drilling methodology and groundwater sampling to investigate groundwater quality at an equipment rental facility. (2006)

**Groundwater Investigation, Confidential Client, Grenada, Mississippi**

**Field Engineer.** Installation of two groundwater monitoring wells using sonic drilling methodology to investigate groundwater quality in two distinct aquifers. (2005)

**Gas Monitoring Probe Installation, Morris Farm Landfill, Hillsboro, Alabama**

**Senior Engineer.** Installation of nine methane monitoring probes. Field activities included visual logging of soils and above grade completion tasks. (2005)

**Phase I Environmental Site Assessment (ESA), DHL, Hot Springs, Arkansas**

**Project Manager.** Conducted Phase I ESAs on a potential distribution site. (2007)

**Phase I ESA, FedEx Corporation, Louisville, Kentucky**

**Project Manager.** Conducted Phase I Environmental Site Assessment on a State managed superfund site owned by the Louisville Regional Airport Authority. (2007)

**Memberships**

1. Alliance of Hazardous Materials Professionals
2. American Society of Civil Engineers
3. Society of American Military Engineers (V.P. Memphis Post – 2007, 2008; Board of Directors - 2009)



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**Matthew S. Aufman, P.G.**

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## Experience Summary

Matt Aufman is experienced with conducting hydrogeological investigations at both controlled and uncontrolled hazardous waste sites, including CERCLA and RCRA, and state regulated facilities. Mr. Aufman's responsibilities include management of field operations and crews, remedial injections oversight, soil classification, monitoring well installations, aquifer characterization, groundwater sampling, soil sampling, and field records management. Other responsibilities include data analysis, report generation, and management of soil and water quality monitoring databases.

### Assignment

Field CQA Inspector

### Education

(b) (6)

### Registration

Licensed Professional Geologist,  
#5355, Tennessee, 1/2009

Mississippi Registered EIT

### Experience

3 Years

### Joined Firm

2007

### Relevant Expertise

- Soil, groundwater, and surface water sampling
- Groundwater aquifer characterization
- Supervision of a drilling crew
- Slug test and aquifer test analysis
- Familiar with Adobe Illustrator, MathCAD, JMP 6.0, Variowin 2.21, Winlog, gINT, Bluebeam PDF Revu

### Confidential Client, Arkansas

**Staff Hydrogeologist.** Responsible for classifying deep soils collected during Site investigation using sonic drilling techniques and. Activities also included conducting slug tests on existing wells and conduction of routine groundwater monitoring. 2010.

### Confidential Client, Ohio

**Staff Hydrogeologist.** Responsible for collection of groundwater samples from temporary wells. Responsibilities included classification of bedrock samples and logging of fractures, and oversight of staff collecting groundwater samples. 2010.

### Waste Connections, Olive Branch, Mississippi

**Construction Quality Monitor.** Responsible for oversight of earthwork construction and installation of geosynthetic clay liner system in a 1.5 acre Class I landfill cell. Conducted nuclear density tests on compacted fill material. 2010.

### Confidential Client, New Albany, Mississippi

**Staff Hydrogeologist.** Responsible for oversight of repairs and upgrades to groundwater treatment system, including diagnosing air stripper malfunctions. Collected bi-monthly effluent samples and filed Discharge Monitoring Reports (DMRs) with the State. 2010.

### Former AZC Site, Pennsylvania

**Staff Hydrogeologist.** Responsible for implementation of initial Site investigation activities. Responsibilities included supervision of drilling crews for monitoring well installation, and the classification and collection of soil samples using hollow-stem auger and direct push techniques. Field activities were conducted to delineate the extent of former smelter waste piles. Responsibilities also included supervising the installation of double cased deep bedrock monitoring wells. Activities also included conducting slug tests on all Site monitoring wells and analysis of slug test data. 2009.

### Confidential Client, New Jersey

**Staff Hydrogeologist.** Responsible for collection of shallow soil samples for radiological analysis. Responsibilities included classification and collection of soil samples using direct push techniques to delineate the extent of a former sludge lagoon. Also conducted soil vapor sampling through shallow Geoprobe borings. 2009.

### Harcros Chemicals, Inc., Memphis, Tennessee

**Staff Hydrogeologist.** Responsible for implementation of initial Site

investigation activities. Responsibilities included supervision of drilling crews for monitoring well installation, classification and collection of soil samples using hollow-stem auger and direct push techniques, groundwater monitoring well development and sampling, analytical data analysis, and technical report generation. 2009.

#### **Concord Custom Cleaners, Lexington, Kentucky**

**Staff Hydrogeologist.** Responsible for supervision of HRCTM, and HRC-XTM injections using direct-push technology. Responsibilities included groundwater sampling activities including hydrogen sampling and report generation. 2008-2010.

#### **Coastal Mart, Inc., Paducah Kentucky**

**Staff Hydrogeologist.** Responsible for supervision and data collection of mobile enhanced multi-phase extraction (MEME) events. Activities also include soil and groundwater sampling activities. 2008-2010.

#### **Magnetek, Goodland, Indiana**

**Staff Geologist.** Responsible for creation of remediation work plan. Implemented field operations for well installation and development, groundwater sampling and water level monitoring. Responsibilities included data management, data evaluation, budget development, and report generation. 2007-2010.

#### **Confidential Client, Calvert City, Kentucky**

**Staff Hydrogeologist/Field Geologist.** Activities included monitoring well and piezometer installation, development, and sampling; and health and safety monitoring. Responsible for groundwater sampling and water level monitoring. Supervision of EHCTM, HRCTM, and HRC-XTM injections using direct-push technology. 2007-2008.

#### **Magnetek, New Orleans, Louisiana**

**Staff Hydrogeologist.** Implemented field operations including water level monitoring and soil and groundwater sampling. Activities also included installation and abandonment of groundwater monitoring wells. Constituents of concern are VOCs (i.e., TCE, PCE, vinyl chloride, benzene, chlorobenzene). Responsibilities included data management, data evaluation, budget development, plume mass calculations, and report generation. 2007-2010.

#### **Cyprus-Amex, Knoxville, Tennessee**

**Staff Hydrogeologist.** Activities included monitoring well and piezometer installation through the use of direct push, auger, and air technologies for the characterization of site hydrogeology. Activities also included single well slug testing and long term pumping tests to assess site hydrogeologic controls. Responsibilities included soil classification, aquifer slug testing and analysis, and pump test analysis. 2007-2008.

#### **Confidential Client, Dandridge, Tennessee**

**Staff Hydrogeologist.** Activities included monitoring well placement, installation using hollow-stem auger and air rotary techniques, development, and sampling. Also conducted surface wipe sampling for e-coli analysis. 2008.

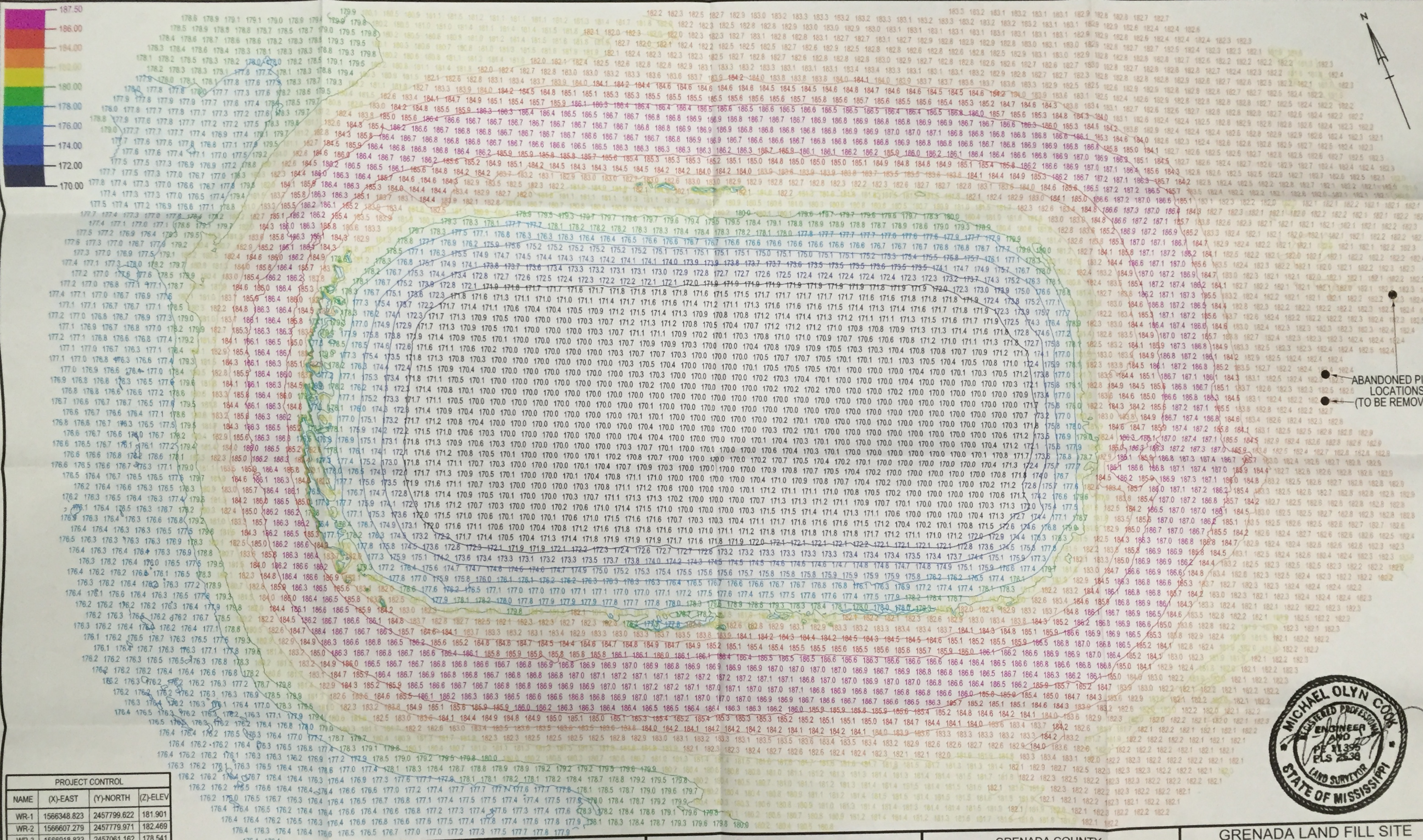
#### **FCX, Statesville, North Carolina**

**Staff Hydrogeologist.** Assisted in implementation of field operations including groundwater sampling, water level monitoring, and data management. 2007.

## Appendix D: Project Record Drawings

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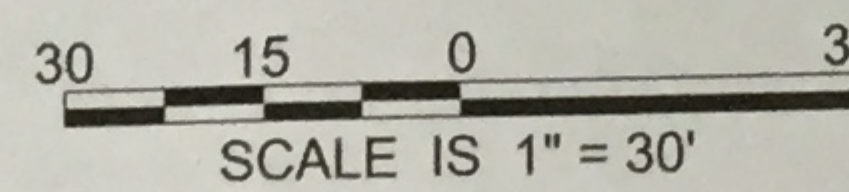
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WR-2	1566607.279	2457779.971	182.469
WR-3	1566918.333	2457061.162	178.541

**SURVEY NOTES**

- THIS SURVEY WAS CONDUCTED ON THE FOLLOWING DATES: MAY 26-30, JUNE 16, JULY 15, AUG 30, & OCT 12, 2010
- ALL ELEVATIONS ARE REFERENCED TO NAVD 83 IN FEET
- PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE WEST ZONE OF MISSISSIPPI AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 - NAD 83(2007).
- TOPOGRAPHIC SURVEY WAS PERFORMED USING REAL LASER SCANNER SYSTEM & RIK WITH TRIMBLE 460 RECEIVERS

- STANDARD FIELD EQUIPMENT CALIBRATIONS WERE PERFORMED FOR THIS SURVEY AND ACCURACY RESULTS ARE WITHIN MANUFACTURER'S SPECIFICATIONS.

- THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE RESULTS OF SURVEYS MADE ON THE DATES INDICATED IN SURVEY TABULATION AND CAN ONLY BE CONSIDERED AS INDICATING THE GENERAL CONDITIONS AT THAT TIME.



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GRENADA, MS.

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**GRENADA LAND FILL SITE**  
EXISTING CONDITIONS  
BEFORE CONSTRUCTION  
HARD BOTTOM  
PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	1 of 10	EMC-10033-01





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SURVEY NOTES

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MAY 26-30, JUNE 16, JULY 9, JULY 15, AUG 30, & OCT 12, 2010

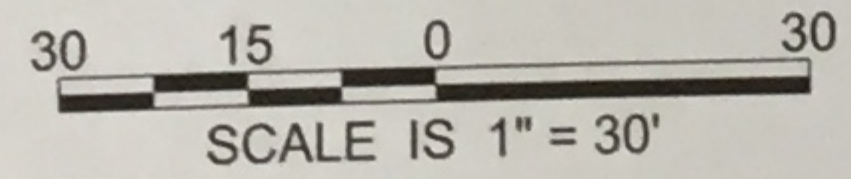
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- TOPOGRAPHIC SURVEY WAS PERFORMED USING RIEGL LASER SCANNER SYSTEM & RTK WITH TRIMBLE R8 RECEIVERS.

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**GRENADA COUNTY**  
**GRENADA, MS.**

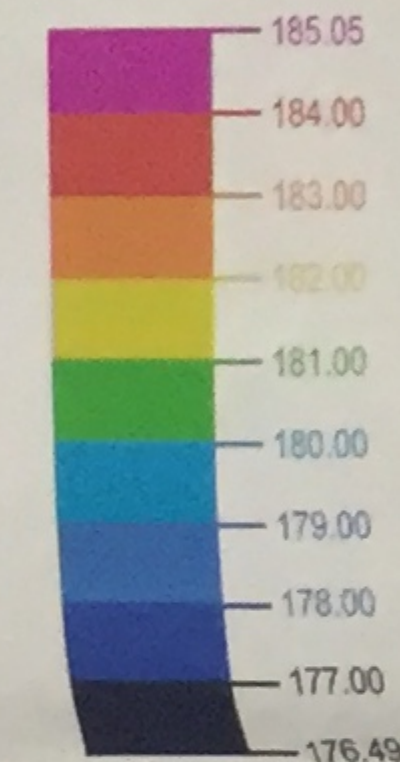
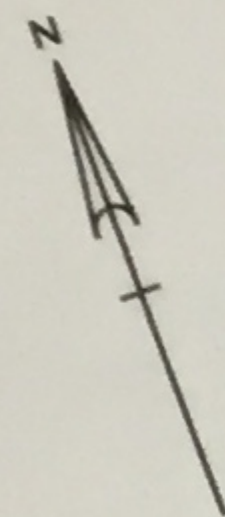
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[www.wrscompass.com](http://www.wrscompass.com)

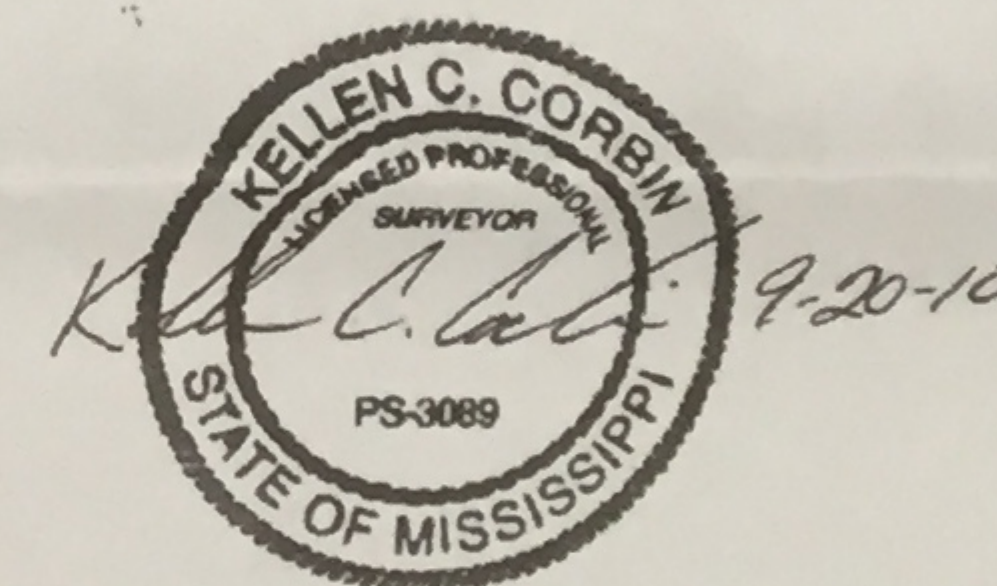
**GRENADA LAND FILL SITE**  
**EXISTING CONDITIONS**  
**BEFORE CONSTRUCTION**  
**TOP OF SLUDGE**  
**PLAN**

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
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PERIMETER



PROJECT CONTROL

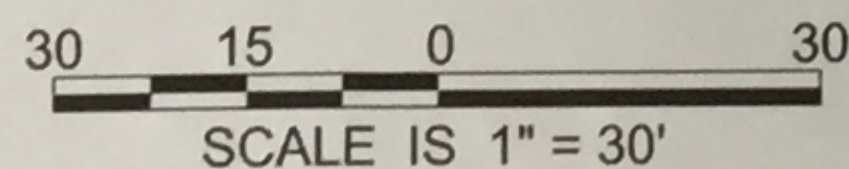
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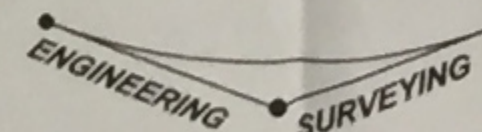
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- PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR  
PROJECTION FOR THE WEST ZONE OF MISSISSIPPI AND REFERENCED  
TO THE NORTH AMERICAN DATUM OF 1983 - NAD 83(2011).



CES



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Ackerman, MS 39735-1209  
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GRENADA, MS.

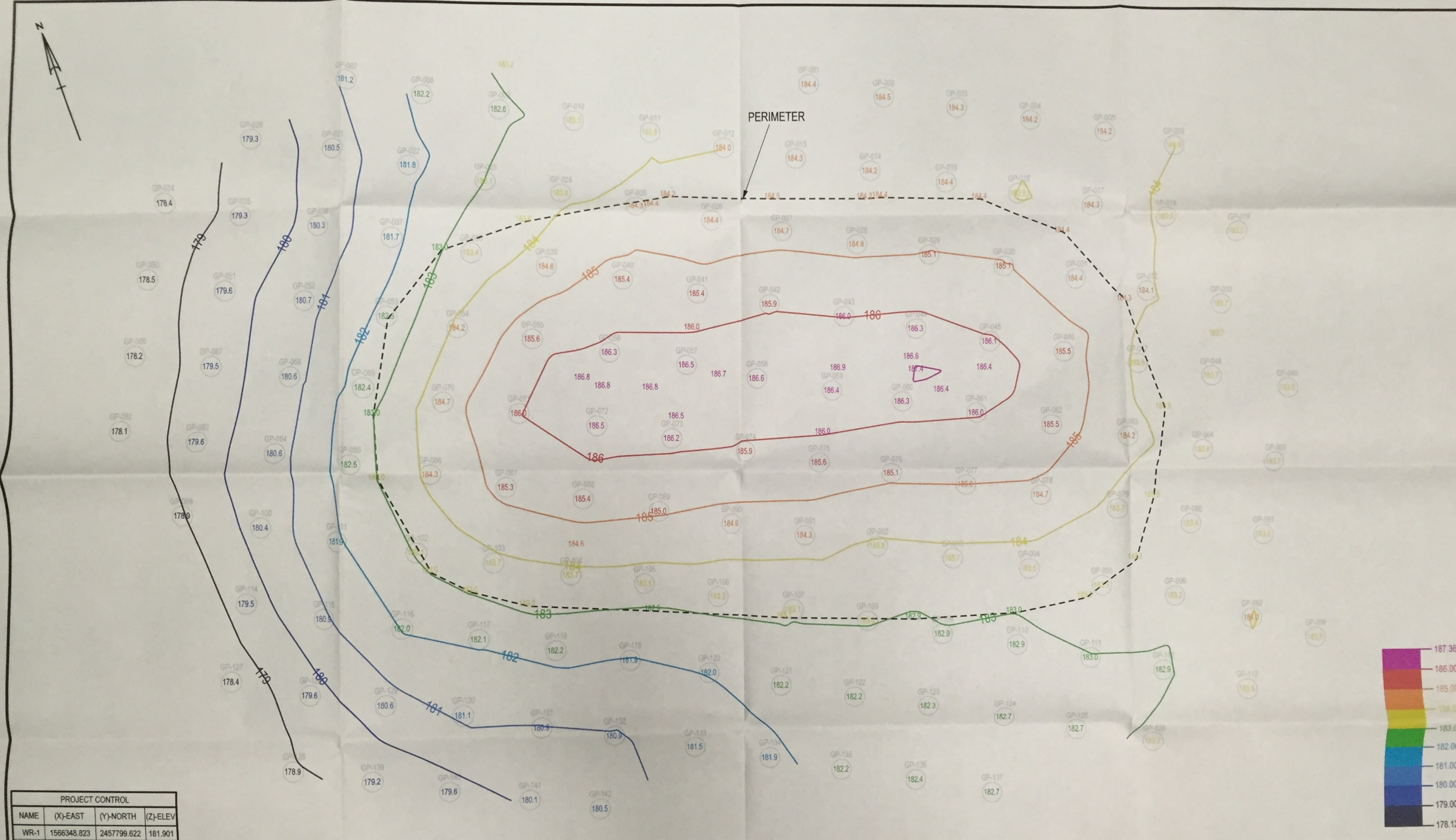
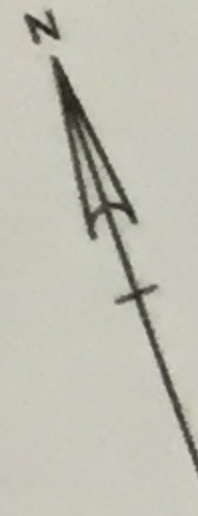
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GRENADA LAND FILL SITE  
AFTER CONSTRUCTION  
TOP OF SOLIDIFIED SLUDGE  
PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	09/20/2010	3 of 10	EMC-10033-03





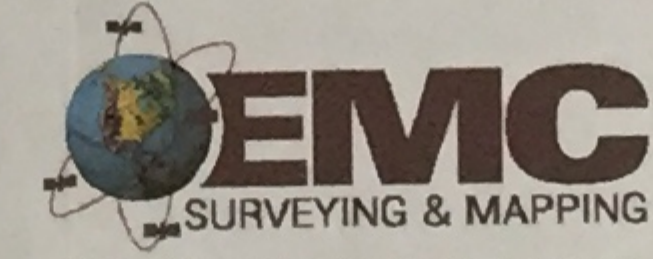
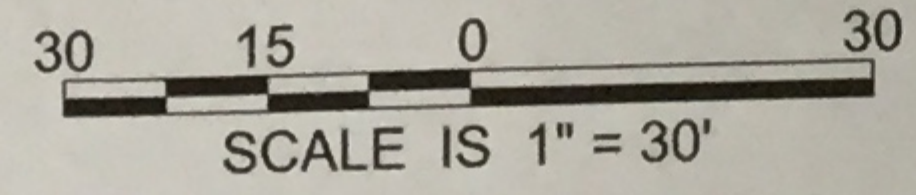
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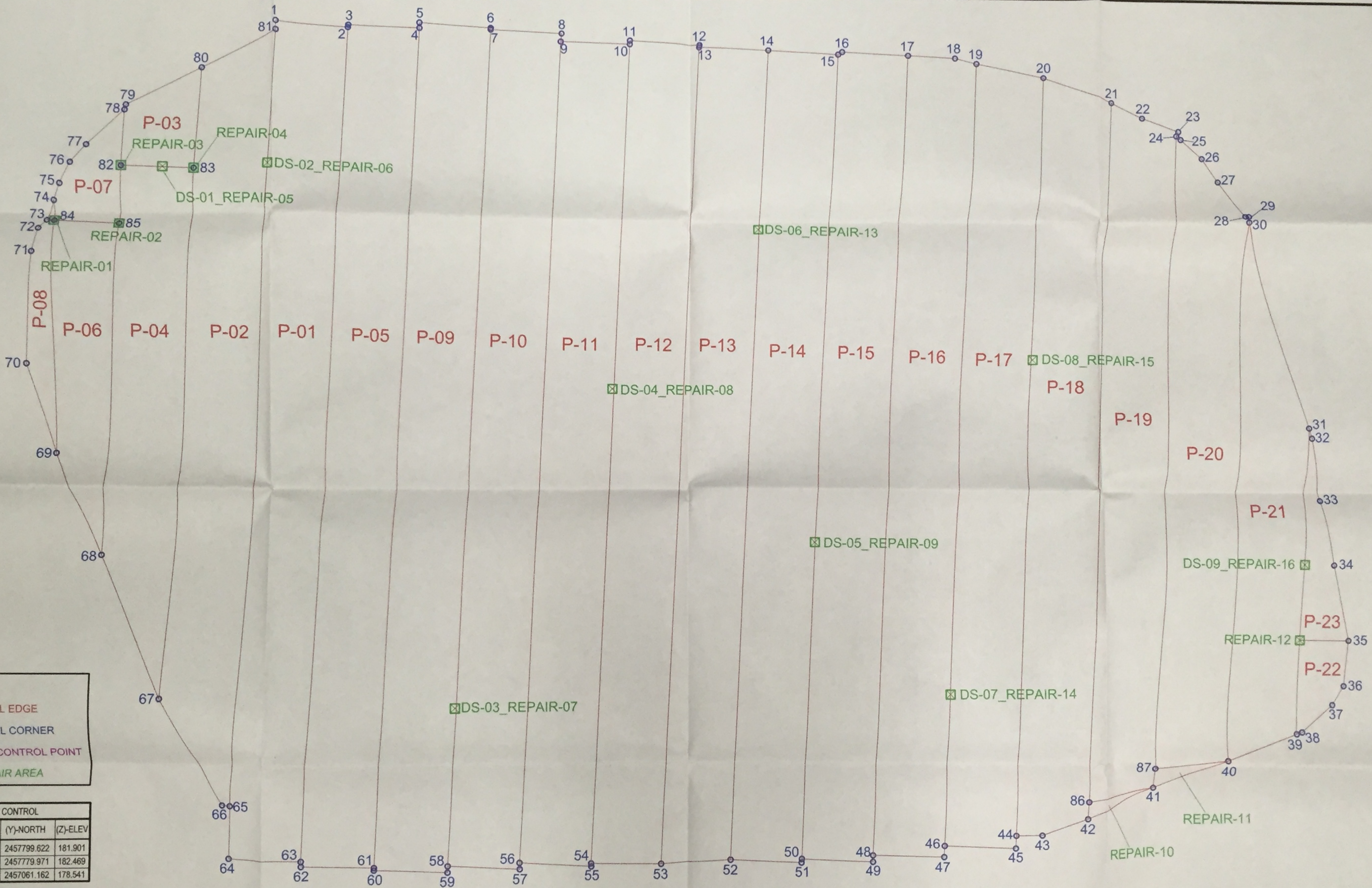
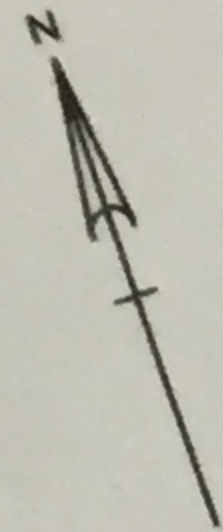
GRENADA COUNTY  
GRENADA, MS.

**WRS Compass**  
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[www.wrscompass.com](http://www.wrscompass.com)

**GRENADA LAND FILL SITE**  
AFTER CONSTRUCTION  
TOP OF SUB BASE  
PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	4 of 10	EMC-10033-04





**LEGEND**

- PANEL EDGE
- PANEL CORNER
- SET CONTROL POINT
- REPAIR AREA

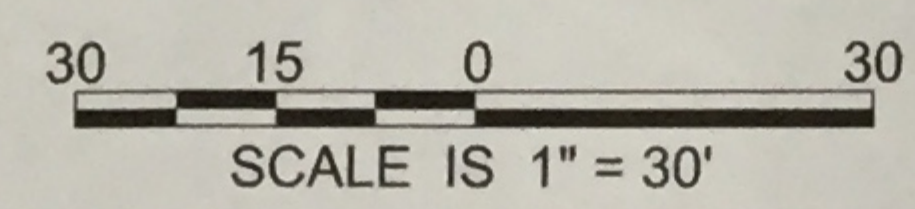
PROJECT CONTROL			
NAME	(X)-EAST	(Y)-NORTH	(Z)-ELEV
WR-1	1566348.823	2457799.622	181.901
WR-2	1566607.279	2457779.971	182.469
WR-3	1566918.833	2457061.162	178.541

**SURVEY NOTES:**

- THIS SURVEY WAS CONDUCTED ON THE FOLLOWING DATES: MAY 26-30, JUNE 16, JULY 9, JULY 15, AUG 30, & OCT 12, 2010
- ALL ELEVATIONS ARE REFERENCED TO NAVD 1988 IN FEET TO THE 2004.85 EPOCH.
- PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE WEST ZONE OF MISSISSIPPI AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 - NAD 83(2007).
- TOPOGRAPHIC SURVEY WAS PERFORMED USING RIEGL LASER SCANNER SYSTEM & RTK WITH TRIMBLE R6 RECEIVERS.

- STANDARD FIELD EQUIPMENT CALIBRATIONS WERE PERFORMED FOR THIS SURVEY AND ACCURACY RESULTS ARE WITHIN MANUFACTURERS SPECIFICATIONS.

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SURVEYING & MAPPING

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CENTER POINT, LA \* PUNTA GORDA, FL \* HOUSTON, TX

GRENADA COUNTY  
GRENADA, MS.

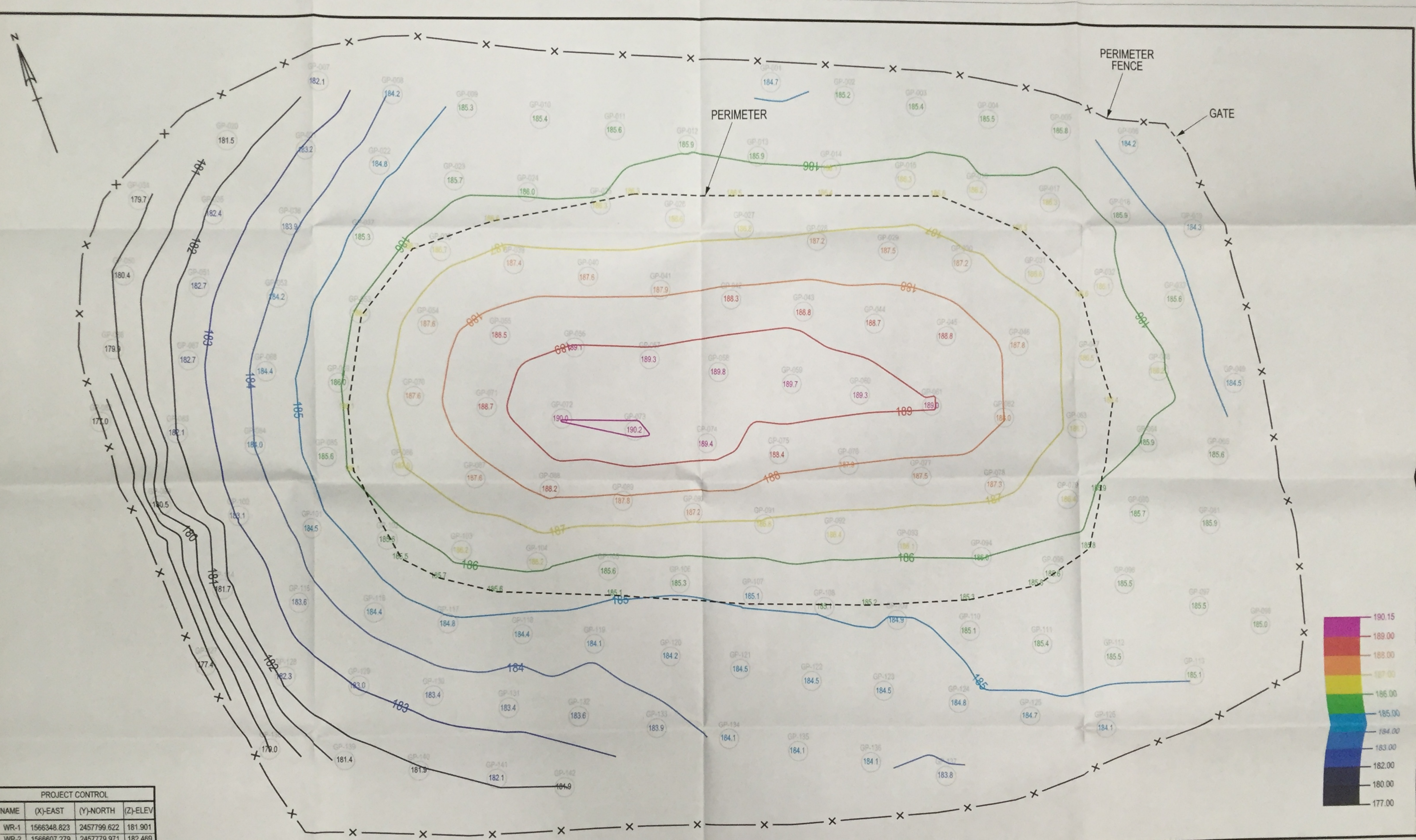
**WRS Compass**  
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**GRENADA LAND FILL SITE**  
AFTER CONSTRUCTION  
LINER PANELS

PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	5 of 10	EMC-10033-05





PROJECT CONTROL			
NAME	(X)-EAST	(Y)-NORTH	(Z)-ELEV
WR-1	1566348.823	2457799.622	181.901
WR-2	1566607.279	2457779.971	182.469
WR-3	1566918.833	2457061.162	178.541

**SURVEY NOTES:**

THIS SURVEY WAS CONDUCTED ON THE FOLLOWING DATES:  
MAY 28-30, JUNE 16, JULY 9, JULY 15, AUG 30, & OCT 12, 2010  
ALL ELEVATIONS ARE REFERENCED TO NAVD 1988 IN FEET  
TO THE 2004.65 EPOCH.

PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR PROJECTION FOR THE WEST ZONE OF MISSISSIPPI AND REFERENCED TO THE NORTH AMERICAN DATUM OF 1983 - NAD 83(2007).

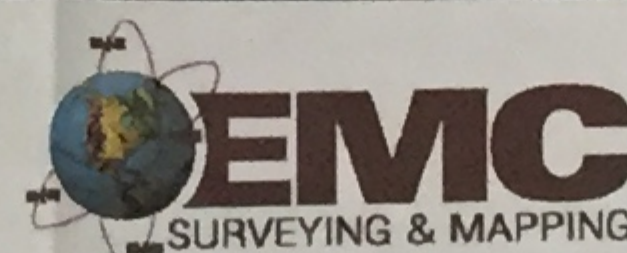
TOPOGRAPHIC SURVEY WAS PERFORMED USING RIEGL LASER  
SCANNER SYSTEM & RTK WITH TRIMBLE R8 RECEIVERS.

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30 15 0 30

SCALE IS 1" = 30'



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GRENADA COUNTY  
GRENADA, MS.



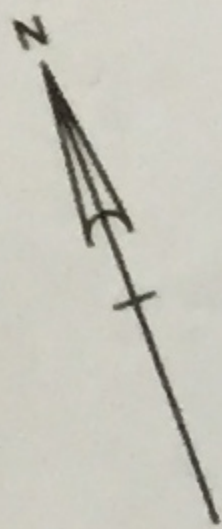
## WRS Compass

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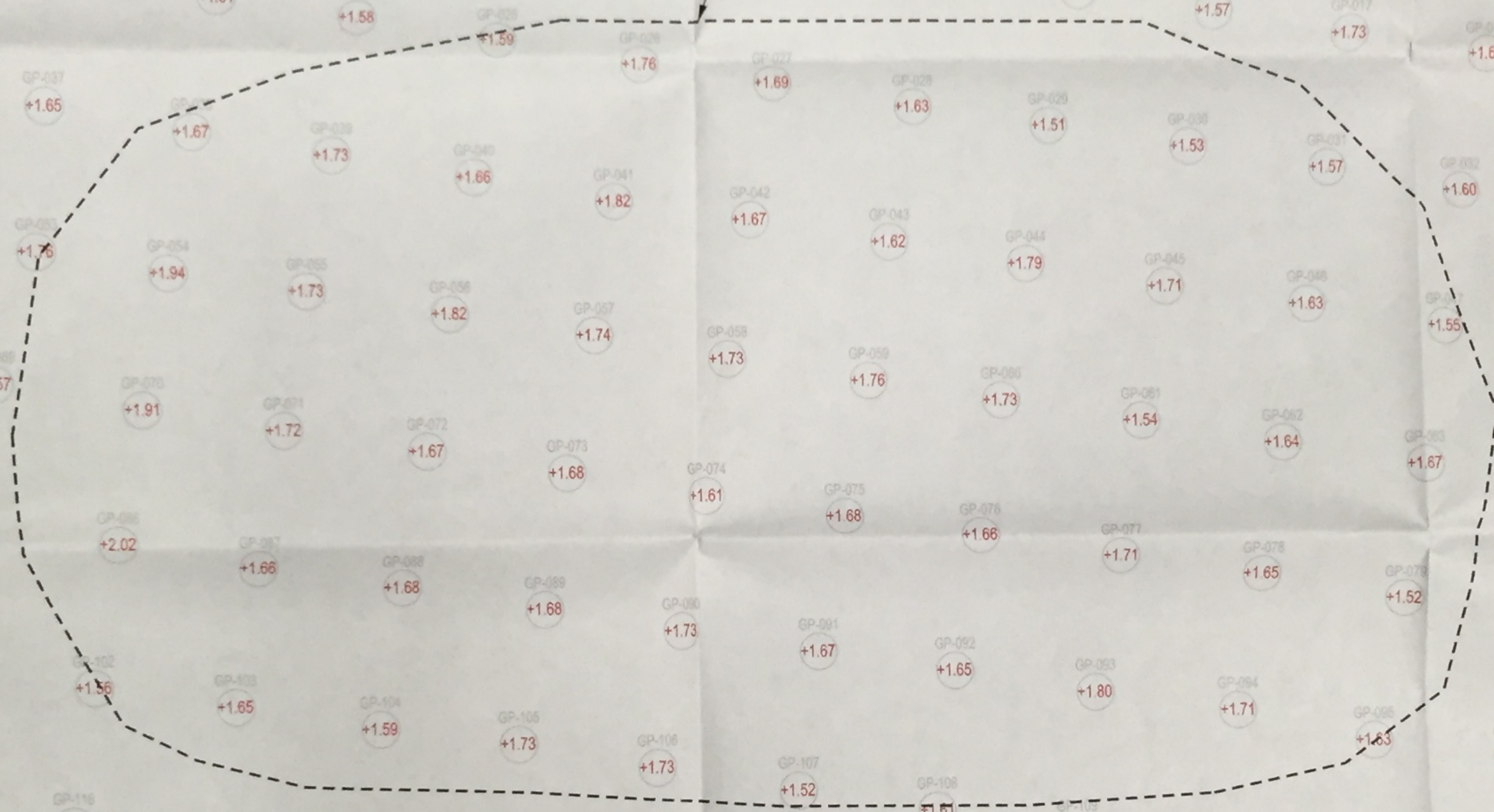
GRENADA LAND FILL SITE  
AFTER CONSTRUCTION  
TOP OF VEGETATIVE COVER  
& PERIMETER FENCE  
PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	6 of 10	EMC-10033-06





PERIMETER



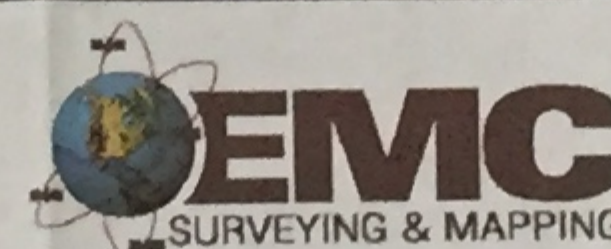
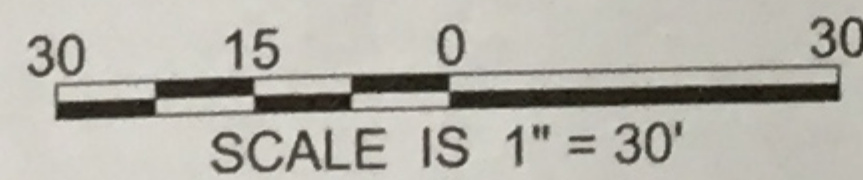
PROJECT CONTROL

NAME	(X)-EAST	(Y)-NORTH	(Z)-ELEV
WR-1	1566348.823	2457799.622	181.901
WR-2	1566607.279	2457779.971	182.469
WR-3	1566918.833	2457061.162	178.541

SURVEY NOTES

- THIS SURVEY WAS CONDUCTED ON THE FOLLOWING DATES: MAY 26-30, JUNE 16, JULY 9, JULY 15, AUG 30, & OCT 12, 2010
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GRENADA COUNTY  
GRENADA, MS.



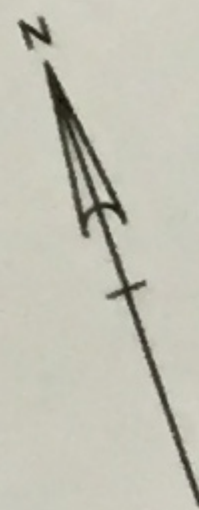
WRS Compass

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GRENADA LAND FILL SITE  
AFTER CONSTRUCTION  
SUB BASE THICKNESS  
GRID REPORT  
PLAN

SCALE	AS SHOWN	PLANT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	7 of 10	EMC-10033-07





PERIMETER

PROJECT CONTROL			
NAME	(X)-EAST	(Y)-NORTH	(Z)-ELEV
WR-1	1566348.823	2457799.622	181.901
WR-2	1566607.279	2457779.971	182.469
WR-3	1566918.833	2457061.162	178.541

SURVEY NOTES:

- THIS SURVEY WAS CONDUCTED ON THE FOLLOWING DATES:  
MAY 25-30, JUNE 15, JULY 9, JULY 15, AUG 30, & OCT 12, 2010

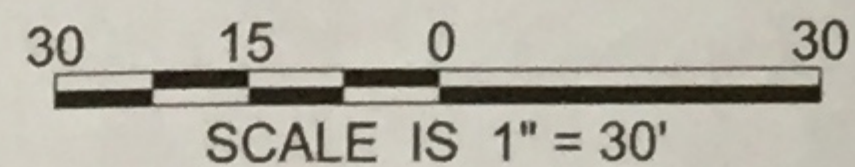
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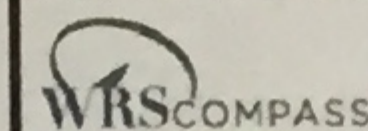
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GRENADA COUNTY  
GRENADA, MS.



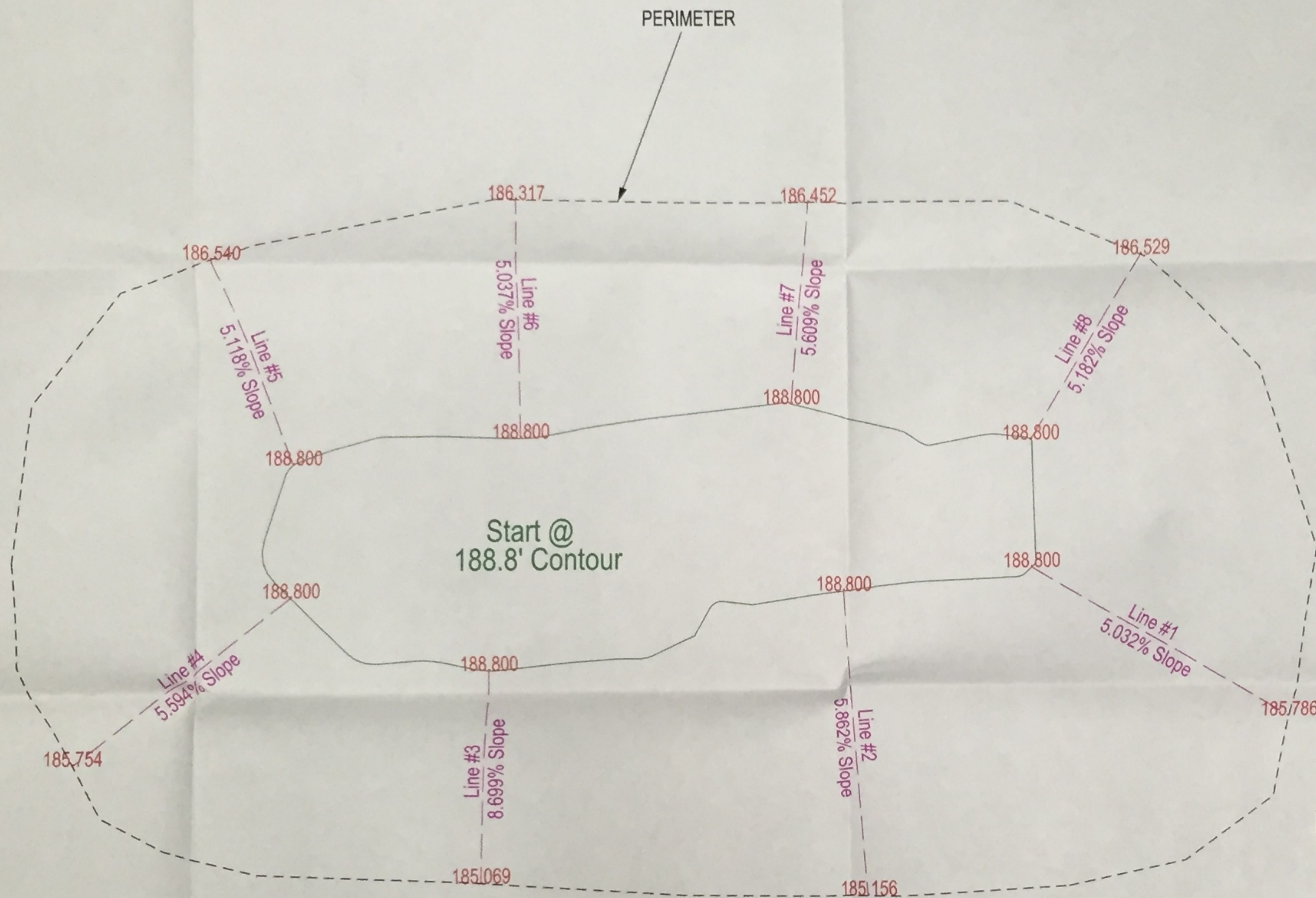
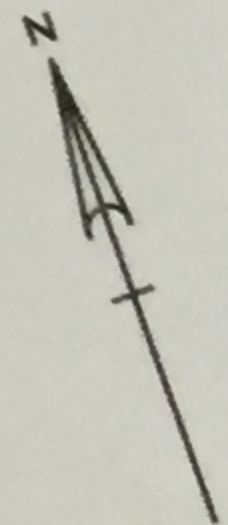
WRS Compass

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GRENADA LAND FILL SITE  
AFTER CONSTRUCTION  
VEGETATIVE COVER THICKNESS  
GRID REPORT  
PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	8 of 10	EMC-10033-08





### Grade Slope Report

Line No.	(X)-Easting	(Y)-Northing	(Z)-Elev	Azimuth	Distance	Elev Diff	Slope
1	2457700.046	1566485.207	188.800	142°23'16.79"	59.896	3.014	5.032%
	2457736.601	1566437.760	185.786				
2	2457662.747	1566494.753	188.800	196°50'09.38"	62.158	3.644	5.862%
	2457644.745	1566435.260	185.156				
3	2457590.799	1566505.668	188.800	202°39'04.80"	42.889	3.731	8.699%
	2457574.282	1566466.088	185.069				
4	2457559.595	1566533.476	188.800	252°48'06.58"	54.453	3.046	5.594%
	2457507.576	1566517.375	185.754				
5	2457569.362	1566558.499	188.800	0°42'23.39"	44.158	2.260	5.118%
	2457569.907	1566602.654	186.540				
6	2457613.545	1566546.884	188.800	19°58'39.26"	49.297	2.483	5.037%
	2457630.387	1566593.214	186.317				
7	2457666.672	1566533.834	188.800	26°03'45.88"	41.863	2.348	5.609%
	2457685.065	1566571.440	186.452				
8	2457709.382	1566509.289	188.800	51°51'26.04"	43.824	2.271	5.182%
	2457743.849	1566536.356	186.529				

#### SURVEY NOTES:

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MAY 26-30, JUNE 16, JULY 9, JULY 15, AUG 30, & OCT 12, 2010

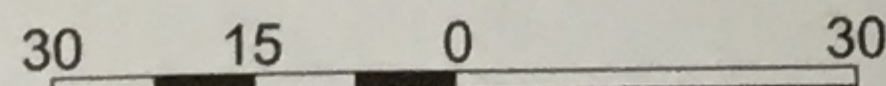
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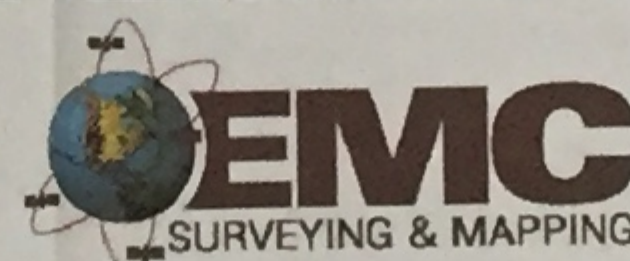
- TOPOGRAPHIC SURVEY WAS PERFORMED USING RIEGL LASER  
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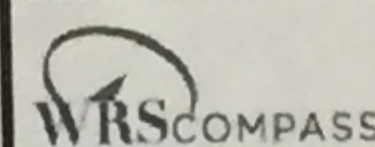


SCALE IS 1" = 30'



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GRENADA, MS.



WRS Compass

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### GRENADA LAND FILL SITE AFTER CONSTRUCTION TOP VEGETATIVE COVER GRADE SLOPE REPORT PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	9 of 10	EMC-10033-09



## Survey Elevations & Differences

Grid	Top Solidified Sludge Elev	Diff (+/-)	Top Sub-Base Elev	Diff (+/-)	Top Vegetative Cover Elev	Grid	Top Solidified Sludge Elev	Diff (+/-)	Top Sub-Base Elev	Diff (+/-)	Top Vegetative Cover Elev	Grid	Top Solidified Sludge Elev	Diff (+/-)	Top Sub-Base Elev	Diff (+/-)	Top Vegetative Cover Elev
GP-001	182.90	+1.54	184.44	+0.31	184.75	GP-051	178.06	+1.55	179.61	+3.07	182.68	GP-101	180.27	+1.60	181.87	+2.61	184.48
GP-002	182.96	+1.56	184.52	+0.72	185.24	GP-052	179.09	+1.58	180.67	+3.50	184.17	GP-102	181.50	+1.56	183.06	+2.55	185.61
GP-003	182.77	+1.52	184.29	+1.15	185.44	GP-053	180.55	+1.76	182.31	+3.90	186.21	GP-103	182.09	+1.65	183.74	+2.45	186.19
GP-004	182.69	+1.52	184.21	+1.24	185.45	GP-054	182.28	+1.94	184.22	+3.41	187.63	GP-104	182.10	+1.59	183.69	+2.46	186.15
GP-005	182.66	+1.56	184.22	+1.54	185.76	GP-055	183.67	+1.73	185.60	+2.94	188.54	GP-105	181.76	+1.73	183.49	+2.09	185.58
GP-006	182.42	+1.58	184.00	+0.22	184.22	GP-056	184.44	+1.82	186.26	+2.84	189.10	GP-106	181.56	+1.73	183.29	+2.03	185.32
GP-007	179.64	+1.51	181.15	+0.99	182.14	GP-057	184.78	+1.74	186.52	+2.77	189.29	GP-107	181.60	+1.52	183.12	+2.01	185.13
GP-008	180.70	+1.54	182.24	+1.96	184.20	GP-058	184.89	+1.73	186.62	+3.17	189.79	GP-108	181.42	+1.61	183.03	+2.03	185.06
GP-009	181.32	+1.53	182.85	+2.48	185.33	GP-059	184.60	+1.76	186.36	+3.36	189.72	GP-109	181.24	+1.65	182.89	+2.02	184.91
GP-010	181.74	+1.54	183.28	+2.09	185.37	GP-060	184.55	+1.73	186.28	+3.04	189.32	GP-110	181.18	+1.68	182.86	+2.24	185.10
GP-011	182.26	+1.55	183.81	+1.76	185.57	GP-061	184.49	+1.54	186.03	+3.01	189.04	GP-111	181.26	+1.71	182.97	+2.45	185.42
GP-012	182.48	+1.53	184.01	+1.93	185.94	GP-062	183.83	+1.64	185.47	+2.52	187.99	GP-112	181.36	+1.53	182.89	+2.56	185.45
GP-013	182.66	+1.59	184.25	+1.68	185.93	GP-063	182.57	+1.67	184.24	+2.51	186.75	GP-113	181.79	+2.02	183.81	+1.25	185.06
GP-014	182.68	+1.56	184.24	+1.82	186.06	GP-064	181.92	+1.63	183.55	+2.34	185.89	GP-114	177.94	+1.57	179.51	+2.23	181.74
GP-015	182.70	+1.71	184.41	+1.67	186.26	GP-065	182.11	+1.54	183.65	+1.98	185.01	GP-115	179.37	+1.50	180.87	+2.69	183.00
GP-016	182.37	+1.57	183.94	+2.23	186.17	GP-066	176.70	+1.54	178.24	+1.61	179.85	GP-116	180.46	+1.57	182.03	+2.38	184.41
GP-017	182.55	+1.73	184.28	+2.02	186.30	GP-067	178.03	+1.51	179.54	+3.12	182.66	GP-117	180.57	+1.53	182.10	+2.70	184.80
GP-018	182.26	+1.66	183.92	+1.95	185.87	GP-068	179.10	+1.54	180.64	+3.74	184.38	GP-118	180.66	+1.58	182.24	+2.14	184.38
GP-019	181.89	+1.57	183.46	+0.81	184.27	GP-069	180.87	+1.57	182.44	+3.53	185.97	GP-119	180.30	+1.60	181.90	+2.19	184.09
GP-020	177.73	+1.56	179.29	+2.18	181.47	GP-070	182.75	+1.91	184.66	+2.93	187.59	GP-120	180.30	+1.70	182.00	+2.19	184.19
GP-021	178.97	+1.56	180.53	+2.69	183.22	GP-071	184.26	+1.72	185.98	+2.72	188.70	GP-121	180.48	+1.69	182.17	+2.29	184.46
GP-022	180.19	+1.56	181.75	+3.05	184.80	GP-072	184.79	+1.67	186.46	+3.56	190.02	GP-122	180.64	+1.59	182.23	+2.32	184.55
GP-023	181.44	+1.61	183.05	+2.70	185.75	GP-073	184.52	+1.68	186.20	+3.95	190.15	GP-123	180.79	+1.52	182.31	+2.22	184.53
GP-024	182.23	+1.58	183.81	+2.14	185.95	GP-074	184.25	+1.61	185.86	+3.56	189.42	GP-124	181.13	+1.54	182.67	+2.18	184.85
GP-025	182.70	+1.59	184.29	+2.01	186.30	GP-075	183.95	+1.68	185.63	+2.74	188.37	GP-125	181.12	+1.59	182.71	+2.02	184.73
GP-026	182.65	+1.76	184.41	+2.17	186.58	GP-076	183.48	+1.66	185.14	+2.80	187.94	GP-126	181.65	+1.51	183.16	+0.95	184.11
GP-027	183.04	+1.69	184.73	+2.09	186.82	GP-077	183.25	+1.71	184.96	+2.57	187.53	GP-127	176.82	+1.59	178.41	-1.05	177.36
GP-028	183.18	+1.63	184.81	+2.40	187.21	GP-078	183.09	+1.65	184.74	+2.51	187.25	GP-128	178.04	+1.52	179.56	+2.75	182.31
GP-029	183.55	+1.51	185.06	+2.40	187.46	GP-079	182.21	+1.52	183.73	+2.64	186.37	GP-129	178.92	+1.66	180.58	+2.44	183.02
GP-030	183.55	+1.53	185.08	+2.15	187.23	GP-080	181.79	+1.59	183.38	+2.31	185.69	GP-130	179.58	+1.52	181.10	+2.33	183.43
GP-031	182.85	+1.57	184.42	+2.34	186.76	GP-081	182.20	+1.59	183.79	+2.07	185.86	GP-131	179.13	+1.80	180.93	+2.43	183.36
GP-032	182.45	+1.60	184.05	+2.09	186.14	GP-082	176.49	+1.63	178.12	-1.12	177.00	GP-132	179.26	+1.62	180.88	+2.76	183.64
GP-033	182.09	+1.58	183.67	+1.96	185.63	GP-083	178.08	+1.51	179.59	+2.49	182.08	GP-133	179.88	+1.60	181.48	+2.39	183.87
GP-034	176.87	+1.55	178.42	+1.33	179.75	GP-084	179.13	+1.49	180.62	+3.43	184.05	GP-134	180.35	+1.55	181.90	+2.16	184.06
GP-035	177.74	+1.54	179.28	+3.09	182.37	GP-085	180.97	+1.56	182.53	+3.05	185.58	GP-135	180.65	+1.52	182.17	+1.98	184.15
GP-036	178.76	+1.58	180.34	+3.56	183.90	GP-086	182.24	+2.02	184.26	+2.71	186.97	GP-136	180.82	+1.61	182.43	+1.65	184.08
GP-037	180.07	+1.65	181.72	+3.59	185.31	GP-087	183.63	+1.66	185.29	+2.35	187.64	GP-137	181.18	+1.52	182.70	+1.10	183.80
GP-038	181.76	+1.67	183.43	+3.29	186.72	GP-088	183.75	+1.68	185.43	+2.78	188.21	GP-138	177.39	+1.51	178.90	+0.12	179.02
GP-039	182.82	+1.73	184.55	+2.84	187.39	GP-089	183.35	+1.68	185.03	+2.72	187.75	GP-139	177.62	+1.56	179.18	+2.26	181.44
GP-040	183.76	+1.66	185.42	+2.22	187.64	GP-090	182.86	+1.73	184.59	+2.62	187.21	GP-140	177.81	+1.77	179.58	+2.31	181.89
GP-041	183.62	+1.82	185.44	+2.49	187.93	GP-091	182.68	+1.67	184.35	+2.46	186.81	GP-141	178.07	+2.07	180.14	+1.99	182.13
GP-042	184.26	+1.67	185.93	+2.40	188.33	GP-092	182.16	+1.65	183.81	+2.62	186.43	GP-142	178.89	+1.65	180.54	+1.41	181.95
GP-043	184.40	+1.62	186.02	+2.77	188.79	GP-093	181.91	+1.80	183.71	+2.42	186.14						
GP-044	184.56	+1.79	186.35	+2.39	188.74	GP-094	181.79	+1.71	183.50	+2.47	185.97						
GP-045	184.41	+1.71	186.12	+2.71	188.83	GP-095	181.70	+1.63	183.33	+2.23	185.56						
GP-046	183.85	+1.63	185.48	+2.28	187.76	GP-096	181.60	+1.58	183.18	+2.30	185.48						
GP-047	182.23	+1.55	183.78	+2.73	186.52	GP-097	182.52	+1.51	184.03	+1.48	185.51						
GP-048	182.11	+1.61	183.72	+2.46	186.18	GP-098	181.93	+1.59	183.52	+1.49	185.01						
GP-049	182.32	+1.52	183.84	+0.69	184.53	GP-099	177.40	+1.55	178.95	+1.57	180.52						
GP-050	176.99	+1.54	178.53	+1.89	180.42	GP-100	178.88	+1.55	180.43	+2.64	183.07						

### Liner Panel Calculations

Horizontal Planar Surface Area	90,690.87 sq/ft
True Slope Surface Area	90,948.90 sq/ft
Linear Circumference	1170.75 ft

### Project Volumes

Existing Sludge	6,611.23 cu/yds
Levee Degrade	4,335.16 cu/yds
Sub Base	4,659.69 cu/yds
Vegetative Cover	6,805.04 cu/yds

#### SURVEY NOTES:

- THIS SURVEY WAS CONDUCTED ON THE FOLLOWING DATES:  
MAY 26-30, JUNE 16, JULY 9, JULY 15, AUG 30, & OCT 12, 2010

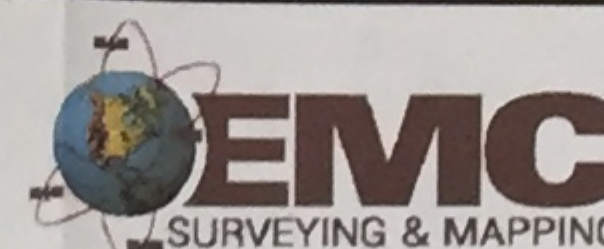
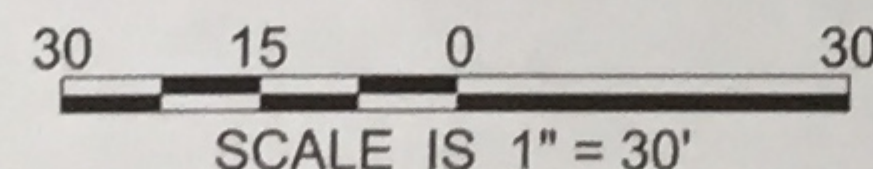
- ALL ELEVATIONS ARE REFERENCED TO NAVD 1988 IN FEET  
TO THE 2011.85 EPOCH.

- PLANE COORDINATES ARE BASED ON THE TRANSVERSE MERCATOR  
PROJECTION FOR THE WEST ZONE OF MISSISSIPPI AND REFERENCED  
TO THE NORTH AMERICAN DATUM OF 1983 - NAD 83 (2011).

- TOPOGRAPHIC SURVEY WAS PERFORMED USING REGAL LASER  
SCANNER SYSTEM & RTK WITH TRIMBLE R9 RECEIVERS

- STANDARD FIELD EQUIPMENT CALIBRATIONS WERE PERFORMED FOR  
THIS SURVEY AND ACCURACY RESULTS ARE WITHIN MANUFACTURERS  
SPECIFICATIONS.

- THE INFORMATION DEPICTED ON THIS MAP REPRESENTS THE  
RESULTS OF SURVEYS MADE ON THE DATES INDICATED IN SURVEY  
TABULATION AND CAN ONLY BE CONSIDERED AS INDICATING THE  
GENERAL CONDITIONS AT THAT TIME.



Web Address: <http://www.emcsurvey.com>  
2472 SUNSET DR. \* GRENADA, MS 38901 \* Ph. (662) 228-5166 \* Fax (662) 228-5170  
CENTER POINT, LA \* PUNTA GORDA, FL \* HOUSTON, TX

GRENADA COUNTY  
GRENADA, MS.



**WRS Compass**

221 Hobbs Street, Tampa, FL 33619  
[www.wrscompass.com](http://www.wrscompass.com)

GRENADA LAND FILL SITE

AFTER CONSTRUCTION  
PROJECT REPORTS

PLAN

SCALE	AS SHOWN	PLOT DATE	DRAWING	SHEET IDENTIFICATION
DRAWN	DEG	10/13/2010	10 of 10	EMC-10033-DN172

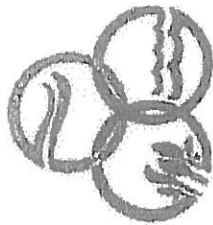


## **Appendix E: Offsite Disposal Facility Certificates**

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STATE OF MISSISSIPPI  
The Department of Environmental Quality  
Office of Pollution Control



*Certificate of Coverage*

under the Mississippi statewide general permit for a Class I Rubbish Site

Be it known that

Joe Reed and Company, Inc.

having submitted a complete Notice of Intent is hereby granted this Certificate of Coverage  
to operate the *Joe Reed and Company Class I Rubbish Site* in

Section: 26, Township: 22 North, Range: 5 West  
Bolivar County, Mississippi

as per the conditions of permit No. SWGP-R1

Certificate No. R1-088

Date Issued: November 6, 2007

Date Expires: December 31, 2016

Chief, Environmental Permits Division





STATE OF MISSISSIPPI  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
CERTIFICATE OF COMPETENCY

Be it known that:

**Joe Wayne Reed, Jr.**

has met the eligibility requirements of the Mississippi Regulations for Certification of  
Operators of Solid Waste Disposal Facilities and is hereby awarded certification as a

**COMMERCIAL CLASS I RUBBISH SITE OPERATOR**

This certificate is valid until expiration unless otherwise revoked.

Operator No. RSO - 048

Date Issued January 1, 2008

Date Expires January 1, 2011

*Mark Witham*  
Mississippi Department of Environmental Quality



# STATE OF MISSISSIPPI

DEPARTMENT OF ENVIRONMENTAL QUALITY

CERTIFICATE OF COMPETENCY

Be it known that:

JOE T. REED, II

has met the eligibility requirements of the Mississippi Regulations for Certification of Operators of Solid Waste Disposal Facilities and is hereby awarded certification as a

**COMMERCIAL CLASS I RUBBISH SITE OPERATOR**

This certificate is valid until expiration unless otherwise revoked.

Operator No. RSO - 133  
Date Issued March 1, 2009  
Date Expires March 1, 2012

*Mark Williams*  
Mississippi Department of Environmental Quality

## **Appendix F: Erosion/Sediment Compliance Documents**

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Small Construction General Permit

Small Construction Notice of Intent (SCNOI)

Inspection and Certification Forms

Storm Water Pollution Prevention Plan (SWP3)

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## **Small Construction General Permit**

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State of Mississippi  
Mississippi Department of Environmental Quality (MDEQ)  
Office of Pollution Control (OPC)



**SMALL CONSTRUCTION GENERAL PERMIT**

**FOR LAND DISTURBING ACTIVITIES OF ONE (1) TO LESS THAN FIVE (5) ACRES**

TO DISCHARGE STORM WATER FROM REGULATED CONSTRUCTION ACTIVITIES IN ACCORDANCE WITH THE NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

**THIS CERTIFIES THAT**

FACILITIES OR PROJECTS ISSUED A CERTIFICATE OF PERMIT COVERAGE UNDER THIS PERMIT ARE GRANTED PERMISSION TO DISCHARGE STORM WATER FROM REGULATED CONSTRUCTION ACTIVITIES INTO STATE WATERS

in accordance with effluent limitations, inspection requirements and other conditions set forth in herein. This permit is issued in accordance with the provisions of the Mississippi Water Pollution Control Law (Section 49-17-1 et seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder and under authority granted pursuant to Section 402(b) of the Federal Water Pollution Control Act.

Mississippi Environmental Quality Permit Board

Authorized Signature

Mississippi Department of Environmental Quality

Issued: January 3, 2008

Expires: December 31, 2012

Permit No. MSR15

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Small Construction General Permit  
Subject Item Inventory

**Subject Item Inventory:**

ID	Designation	Description
ACT1	Small Construction	Introduction
ACT2	Small Construction	Permit Applicability and Coverage
ACT3	Small Construction	Obtaining Coverage
ACT4	Small Construction	Small Construction Notice of Intent
ACT5	Small Construction	Storm Water Pollution Prevention Plan (SWPPP) Development and Content
ACT6	Small Construction	Implementation, Inspection and Reporting Requirements
ACT7	Small Construction	Limitation Requirements
ACT8	Small Construction	Record Keeping
ACT9	Small Construction	Termination of Permit Coverage
ACT10	Small Construction	Standard Requirements Applicable to All Water Permits
ACT11	Small Construction	Definitions
AI35524		

**KEY**

ACT = Activity



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Small Construction General Permit  
Facility Requirements

**ACT1 (Small Construction) Introduction:**

Page 1 of 30

**Narrative Requirements:**

Condition No.	Condition
T-1	INTRODUCTION:

The Small Construction General Permit (SCGP) authorizes storm water discharges from construction activities disturbing one (1) acre to less than five (5) acres, or less than one acre if part of a "larger common plan of development or sale," where the total acreage is based on cumulative planned disturbance (see Definitions). Construction activities that disturb five acres or greater are regulated under the Large Construction General Permit.

Storm water discharges that enter state waters or storm water conveyance systems leading to state waters are subject to regulation and compliance with the conditions set forth in this permit. This permit also authorizes storm water discharges from any other construction activity designated by the Executive Director based on the potential for contribution to an excursion of a water quality standard or for significant contribution of pollutants to state waters. Upon issuance by the Permit Board on Environmental Quality, this permit will replace the previous Small Construction General Permit.

Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, and original purpose of the facility (for example, existing ditches, channels, or other similar storm water conveyances, as well as routine grading of existing dirt roads, asphalt overlays of existing roads, and other similar maintenance activities). [WPC-1]

Small Construction General Permit  
Facility Requirements

Page 2 of 30

**ACT2 (Small Construction) Permit Applicability and Coverage:**

**Narrative Requirements:**

Condition No.	Condition
T-1	PERMIT AREA:  The Small Construction General Permit covers all areas of the State of Mississippi. [WPC-1]
T-2	COVERED DISCHARGES:  (1) Discharges composed entirely of storm water and allowable non-storm water identified in T-4 of this ACT from small construction activities including clearing, grading, excavating and other land disturbing activities equal to or greater than one (1) acre and less than five (5) acres. These discharges are automatically designated as small construction activities under the National Pollutant Discharge Elimination System (NPDES) storm water program and are automatically covered under this permit. Small construction activities disturbing less than one (1) acre are designated if:  - The project is part of a larger common plan of development or sale with a cumulative planned disturbance of equal to or greater than one (1) acre and less than five (5) acres (for example, individual or commercial lots that are part of a subdivision or a commercial development that initially impacts less than one (1) acre but will ultimately exceed the one (1) acre threshold, or  - The Executive Director of the Mississippi Department of Environmental Quality (MDEQ) designates the construction activity based on the potential for contribution to a violation of a water quality standard or for significant contribution of pollutants to waters of the State. [WPC-1]
T-3	(2) A project is eligible for coverage under this general permit for discharges of pollutants of concern to water bodies for which there is a total maximum daily load (TMDL) established or approved by EPA if measures and controls are incorporated that are consistent with the assumptions and requirements of such TMDL. To be eligible for coverage under this general permit, the facility must incorporate any conditions applicable to any discharge(s) necessary for consistency with the assumptions and requirements of such TMDL. If, after coverage issuance, a specific wasteload allocation is established that would apply to the facility's discharge, the facility must implement steps necessary to meet that allocation. [WPC-1]



**ACT2 (continued):**

**Narrative Requirements:**

Condition No.	Condition
T-4	<p><b>ALLOWABLE NON-STORM WATER DISCHARGES:</b></p> <p>Owner or operators are authorized for the following non-storm water discharges. Except for flows from fire fighting activities, sources of non-storm water below that are combined with storm water discharges associated with construction activity must be identified in the Storm Water Pollution Prevention Plan (SWPPP). The SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge.</p> <p>Discharges from fire-fighting activities Fire hydrant flushings Waters used to wash vehicles where detergents are not used Water used to control dust Potable water sources including water line flushings Routine external building wash down that does not use detergents Pavement wash waters where spills or leaks of toxic or hazardous materials have not occurred (unless totally removed) and where detergents are not used Uncontaminated air conditioning or compressor condensate Uncontaminated ground water or spring water Foundation or footing drains where flows are not contaminated with process materials such as solvents Uncontaminated excavation dewatering Landscape irrigation. [WPC-1]</p>

Small Construction General Permit  
Facility Requirements

Page 4 of 30

**ACT2 (continued):**

**Narrative Requirements:**

Condition No.	Condition
T-5	<p><b>THIS PERMIT DOES NOT AUTHORIZE:</b></p> <ul style="list-style-type: none"><li>(1) Discharges of hazardous substances or oil resulting from an on-site spill.</li><li>(2) Discharges that originate from the site after construction activities have been completed and the site has undergone final stabilization.</li><li>(3) Discharges associated with construction activity that disturb five (5) or more acres or that have been covered under an individual permit in accordance with ACT3, S-2 of this permit.</li><li>(4) Discharges from construction sites that the Executive Director determines will cause, or have reasonable potential to cause or contribute to, violations of water quality standards. Where such determinations have been made, the Mississippi Environmental Quality Permit Board (Permit Board) may notify the owner or operator that an individual permit application is necessary in accordance with ACT3, S-2 of this permit. However, the Permit Board may authorize coverage under this permit after appropriate controls and implementation procedures, designed to bring the discharges into compliance with water quality standards, have been included in the Storm Water Pollution Prevention Plan.</li><li>(5) Discharges to impaired receiving waters, unless the SWPPP specifically identifies Best Management Practices (BMPs) which ensure storm water will not cause or contribute to non-attainment of a water quality standard. In cases where the Permit Board becomes aware of potential impairment due to small construction activities, the Permit Board may require the submittal of the SWPPP in order to ascertain whether the selected BMPs are sufficient to comply with requirements of this permit or any other requirements of the Permit Board. The list of impaired receiving waters may be found on the MDEQ web site at <a href="http://www.deq.state.ms.us">www.deq.state.ms.us</a> or by calling 601-961-5171. [WPC-1]</li><li>(6) Discharges that are likely to jeopardize the continued existence of any species that is listed as endangered or threatened under the Environmental Species Act (ESA) or result in the adverse modification or destruction of habitat that is designated under ESA</li><li>(7) Construction activities that will affect state waters, including wetlands, without obtaining the necessary U.S. Army Corps of Engineers' (COE) individual Section 404 permit or coverage under a COE nationwide or general permit. If a Small Construction Notice of Intent (SCNOI) is requested by the Permit Board, appropriate COE documentation must be included. [WPC-1]</li></ul>
T-6	

**ACT3 (Small Construction) Obtaining Coverage:**

**Submittal/Action Requirements:**

Condition No.	Condition
------------------	-----------

**S-1 HOW TO OBTAIN AUTHORIZATION:**

- (1) If a Small Construction Notice of Intent (SCNOI) has not been requested by the Permit Board (SCNOI not submitted to MDEQ).

Owners or operators are authorized to discharge storm water or allowable non-storm water associated with small construction activity under the terms and conditions of this permit upon commencement of small construction land disturbing activities (i.e., Construction may begin after the completion of the SCNOI and the development and implementation of the required Storm Water Pollution Prevention Plan (SWPPP)).

- (2) If a Small Construction Notice of Intent (SCNOI) has been requested by the Permit Board (SCNOI submitted to MDEQ).

Owners or operators are authorized to discharge storm water or allowable non-storm water only after staff review and receipt of written notification of approval of coverage by the Permit Board Staff. [WPC-1]

**S-2 REQUIRING AN INDIVIDUAL PERMIT:**

Upon receipt of a SCNOI, the Permit Board may require an alternate permit. The Permit Board may require any owner or operator of land disturbing activities of equal to or greater than one (1) acre and less than five (5) acres to apply for and obtain an individual NPDES permit. Any interested person may petition the Permit Board to take action under this paragraph. The Permit Board may require any small construction owner or operator to apply for an individual NPDES permit only if the owner or operator has been notified in writing. This notice shall include reasons for this decision, an application form and a filing deadline. The Permit Board may grant additional time upon request. [WPC-1]



Small Construction Storm Water General Permit  
Facility Requirements

**ACT4 (Small Construction) Small Construction Notice of Intent:**

**Submittal/Action Requirements:**

Condition No.	Condition
S-1	<p><b>SMALL CONSTRUCTION NOTICE OF INTENT (SCNOI):</b></p> <p>Prior to the commencement of small construction activity, the owner or operator must complete a Small Construction Notice of Intent (SCNOI) provided at the end of this permit. The SCNOI and SWPPP described in ACT5 shall be submitted to the Mississippi Department of Environmental Quality (MDEQ) only upon request from MDEQ. However, the SCNOI and SWPPP must be maintained at the permitted site or locally available in case inspector review is necessary. Failure to complete a SCNOI prior to the commencement of construction activity or to submit a SCNOI when requested is a violation of State regulations. The SCNOI shall be retained by the owner or operator as required by ACT8, R-1 of this permit. Attachments to the SCNOI must include: a Storm Water Pollution Prevention Plan (SWPPP) and a U.S. Geological Survey quadrangle map or copy (only if required to be submitted to MDEQ) showing site location.</p> <p>The owner(s) of the property and the operator(s) associated with the regulated construction activity on the property have joint and severable responsibility for compliance with the permit. Notwithstanding any permit condition to the contrary, the coverage recipient and any person who causes pollution of waters of the state or places waste in a location where they are likely to cause pollution, shall remain responsible under applicable federal and state laws and regulations, and applicable permits.</p>

The SCNOI shall be signed in accordance with the provisions of ACT10, T-4 of this permit. [WPC-1]

**Narrative Requirements:**

Condition No.	Condition
T-1	<p><b>WHERE TO SUBMIT THE SMALL CONSTRUCTION NOTICE OF INTENT (SCNOI), IF REQUESTED:</b></p> <p>If requested, complete and appropriately signed SCNOI forms must be submitted to:</p> <p>Chief, Environmental Permits Division MS Dept of Environmental Quality, Office of Pollution Control P.O. Box 10385 Jackson, Mississippi 39289-0385. [WPC-1]</p>

Small Construction General Permit  
Facility Requirements

**ACT5 (Small Construction) Storm Water Pollution Prevention Plan (SWPPP) Development and Content:**  
**Submittal/Action Requirements:**

Page 7 of 30

Condition No.	Condition
S-1	SWPPP DEVELOPMENT:

A SWPPP shall be developed and implemented by the owner or operator of a small construction project. Failure to develop a SWPPP prior to commencement of construction activity or to submit a SWPPP when requested is a violation of State regulations. The SWPPP must include a description of appropriate control measures (i.e., BMPs) that will be implemented as part of the construction activity to control pollutants in storm water discharges.

- (1) The SWPPP shall be retained at the permitted site or locally available. A copy of the SWPPP must be made available to the MDEQ inspectors for review at the time of an on-site inspection.
- (2) BMPs shall be in place upon commencement of construction.
- (3) The Executive Director of MDEQ may notify the owner or operator at any time that the SWPPP does not meet the minimum requirements of this permit. After notification, the owner or operator shall amend the SWPPP, implement the changes and certify in writing to the Executive Director that the requested changes have been made. Unless otherwise provided by the Executive Director, the requested changes shall be made within 15 days.
- (4) The owner or operator shall amend the SWPPP and implement the changes before there is a change in construction, operation, or maintenance, which may potentially effect the discharge of pollutants to State waters.
- (5) The owner or operator shall amend the SWPPP and implement the changes if the SWPPP proves to be ineffective in controlling storm water pollutants including, but not limited to, significant sediment leaving the site and non-functioning BMPs. [WPC-1]

Small Construction General Permit  
Facility Requirements

**ACT5 (continued):**

**Narrative Requirements:**

Condition No.	Condition
T-1	<p>SWPPP CONTENT:</p> <p>Owner or Operator:</p> <p>The SWPPP shall identify the "owner or operator" as defined in ACT11 of this permit. The operator's name, complete mailing address and telephone number(s) shall be identified on the plan. [WPC-1]</p> <p>Erosion and Sediment Controls:</p> <p>The owner or operator shall list and describe controls appropriate for the construction activities and the procedures for implementing such controls. Controls shall be designed to retain sediment onsite and should:</p> <ol style="list-style-type: none"> <li>(1) Divert upslope water around disturbed areas</li> <li>(2) Limit exposure of disturbed areas to the shortest time possible</li> <li>(3) Disturb the smallest area possible</li> <li>(4) Preserve existing vegetation where possible, especially trees</li> <li>(5) Preserve vegetated buffer zones around any creek, drain, lake, pond or wetland</li> <li>(6) Slow rainfall runoff velocities to prevent erosive flows</li> <li>(7) Avoid disturbing sensitive areas such as: <ul style="list-style-type: none"> <li>- Steep and/or unstable slopes</li> <li>- Land upslope of surface waters</li> <li>- Areas with erodible soils</li> <li>- Existing drainage channels</li> </ul> </li> <li>(8) Transport runoff down steep slopes through lined channels or piping</li> <li>(9) Minimize the amount of cut and fill</li> <li>(10) Re-vegetate disturbed areas as soon as possible</li> <li>(11) Implement best management practices to mitigate adverse impacts from storm water runoff</li> <li>(12) Remove sediment from storm water before it leaves the site by allowing runoff to pond in controlled areas to drop out sediment</li> <li>(13) Filter runoff by using natural vegetation, brush barriers, silt fences, hay bales, etc. [WPC-1]</li> </ol>
T-2	



Small Construction General Permit  
Facility Requirements

ACT5 (continued):

Narrative Requirements:

Condition No.	Condition
T-3	<p>At a minimum, the controls must be in accordance with the standards set forth in "Planning and Design Manual for the Control of Erosion, Sediment &amp; Stormwater," or other recognized manual of design as appropriate for Mississippi. The planning and design manual can be obtained by calling 601/961-5171 or may be found electronically at Mississippi State's educational web site at <a href="http://abe.msstate.edu/csd/p-dm/">http://abe.msstate.edu/csd/p-dm/</a>. In addition, Mississippi's "Storm Water Pollution Prevention Plan (SWPPP) Guidance Manual for Construction Activities" is available by calling 601/961-5171 or on the MDEQ website at <a href="http://www.deq.state.ms.us">www.deq.state.ms.us</a>. The erosion and sediment controls shall address the following minimum components.</p> <p>(1) Vegetative practices shall be designed to preserve existing vegetation where possible and re-vegetate disturbed areas as soon as practicable after grading or construction. Such practices may include surface roughening, temporary seeding, permanent seeding, mulching, sod stabilization, vegetative buffer strips, and protection of trees. When a disturbed area will be left undisturbed for 30 days or more, the appropriate temporary or permanent vegetative practices shall be implemented within 7 calendar days.</p> <p>(2) Structural practices shall divert flows from exposed soils, store flows or otherwise limit runoff from exposed areas. Such practices may include, but are not limited to, construction entrance/exit, silt fences, earth dikes, brush barriers, drainage swales, check dams, subsurface drains, pipe slope drains, level spreaders, drain inlet protection, drain outlet protection, detention/retention basins, sediment traps, temporary sediment basins or equivalent sediment controls. [WPC-1]</p> <p>(3) Post-construction control measures should be installed to control pollutants in storm water after construction is complete. These controls include, but are not limited to, one or more of the following: on-site infiltration of runoff, flow attenuation using open vegetated swales, exfiltration trenches and natural depressions, constructed wetlands and retention/detention structures. Where needed, velocity dissipation devices shall be placed at detention or retention pond outfalls and along the outfall channel to provide for a non-erosive flow. [WPC-1]</p>
T-4	Non-Storm Water Discharge Management:
T-5	<p>Except for flows from fire fighting activities, sources of non-storm water listed in ACT2, T-4 of this permit that are combined with storm water discharges associated with construction activity must be identified in the SWPPP. Non-storm water discharges should be eliminated or reduced to the extent feasible. The SWPPP must identify and ensure the implementation of appropriate pollution prevention measures for the non-storm water component(s) of the discharge. [WPC-1]</p>

Small Construction Storm Water General Permit  
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**ACT5 (continued):**

**Narrative Requirements:**

Condition No.	Condition
T-6	<p>Housekeeping Practices:</p> <p>The owner or operator shall describe and list practices appropriate to prevent pollutants from entering storm water from construction sites due to poor housekeeping. The owner or operator shall:</p> <ol style="list-style-type: none"><li>(1) Designate areas for equipment maintenance and repair and concrete chute wash off;</li><li>(2) Provide waste receptacles at convenient locations;</li><li>(3) Provide regular collection of waste;</li><li>(4) Provide protected storage areas for chemicals, paints, solvents, fertilizers, and other potentially toxic materials;</li><li>(5) Provide adequately maintained sanitary facilities; and</li><li>(6) Provide secondary containment around on-site fuel tanks. [WPC-1]</li></ol>
T-7	<p>Prepare Scaled Site Map(s):</p> <p>The owner or operator shall prepare a scaled site map showing original and proposed contours (if practicable), drainage patterns, adjacent receiving water bodies, north arrow, all erosion &amp; sediment controls (vegetative and structural), any post-construction control measures, and location of housekeeping practices. If the construction project is linear (see Definitions in ACT11), a scaled site map is not required. However, standard diagrams (e.g., cross sections showing dimensions and labeled components) of erosion and sediment controls to be used must be included in the SWPPP. [WPC-1]</p>
T-8	<p>Implementation Sequence:</p> <p>The owner or operator shall prepare an orderly listing, which coordinates the timing of all major land-disturbing activities together with the necessary erosion and sedimentation control measures planned for the project. [WPC-1]</p>
T-9	<p>Implementation of Controls:</p> <p>The SWPPP shall require the owner or operator, in disturbing an area, to implement controls as needed to prevent erosion and adverse impacts to State waters. [WPC-1]</p>

Small Construction Storm Water General Permit  
Facility Requirements

**ACT5 (continued):**

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**Narrative Requirements:**

Condition No.	Condition
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T-10 Maintenance and Weekly Inspections:

The SWPPP shall describe procedures to maintain vegetation, erosion and sediment controls and other protective measures. Procedures shall provide that all erosion controls are inspected weekly for a minimum of four inspections per month (see ACT 6, S-4). [WPC-1]

T-11 EXAMPLE STORM WATER POLLUTION PREVENTION PLANS (SWPPPs):

Example SWPPPs are included in the Mississippi Storm Water Pollution Prevention Plan Guidance Manual for Construction Activities. [WPC-1]



**ACT6 (Small Construction) Implementation, Inspection and Reporting Requirements:**

**Submittal/Action Requirements:**

Condition No.	Condition
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**S-1 SWPPP IMPLEMENTATION REQUIREMENTS:**

The coverage recipient shall:

- (1) Implement the SWPPP and retain a copy of the SWPPP at the permitted site or locally available. Failure to implement the SWPPP is a violation of permit requirements. A copy of the SWPPP must be made available to the MDEQ inspectors for review at the time of an on-site inspection.
- (2) Ensure that appropriate Best Management Practices (BMPs) are in place upon commencement of construction.
- (3) Amend the SWPPP if notified at any time by the Executive Director of the MDEQ that the SWPPP does not meet the minimum requirements. Owner or operator shall certify in writing to the Executive Director that the requested changes have been made. Unless otherwise provided, the requested changes shall be made within 15 days.
- (4) Amend the SWPPP whenever there is a change in design, construction, operation, or maintenance which may potentially affect the discharge of pollutants to State waters; or the SWPPP proves to be ineffective in controlling storm water pollutants. If the SCNOI was required to be submitted to MDEQ, the amended SWPPP shall be submitted within 30 days of amendment. Proposed expansion to five (5) acres or greater requires the submittal of a Large Construction Notice of Intent (LCNOI).
- (5) Install needed erosion controls even if they may be located in the way of subsequent activities, such as utility installation, grading or construction. It shall not be an acceptable defense that controls were not installed because subsequent activities would require their replacement or cause their destruction.
- (6) Install additional and/or alternative erosion and sediment controls when existing controls prove to be ineffective in preventing sediment from leaving the site.
- (7) Minimize off-site vehicle tracking of sediments. [WPC-1]

**ACT6 (continued):**

**Submittal/Action Requirements:**

Condition No.	Condition
S-2	<p>SWPPP IMPLEMENTATION REQUIREMENTS (continued):</p> <p>(8) Comply with applicable State or local waste disposal, sanitary sewer or septic system regulations.</p> <p>(9) Maintain all erosion controls. Except for sediment basins, all accumulated sediment shall be removed from structural controls when sediment deposits reach one-third to one-half the height of the control. For sediment basins, accumulated sediment shall be removed when the capacity has been reduced by 50%. All removed sediment deposits shall be properly disposed. Non-functioning controls shall be repaired, replaced or supplemented with functional controls within 24 hours of discovery or as soon as field conditions allow.</p> <p>(10) Implement steps necessary to meet a specific wasteload allocation established subsequent to the beginning of construction. [WPC-1]</p>
S-3	<p>SWPPP COMPLIANCE WITH LOCAL STORM WATER ORDINANCES:</p> <p>(1) In addition to the requirements of this permit, the SWPPP shall be in compliance with all local storm water ordinances.</p> <p>(2) When storm water discharges into a Municipal Separate Storm Sewer System (MS4), the owner or operator must make the SWPPP available to the municipal authority upon request. [WPC-1]</p>
S-4	<p>INSPECTION REQUIREMENTS:</p> <p>Inspection of all erosion controls and other SWPPP requirements shall be performed during permit coverage using a copy of the form provided at the back of this permit. Inspections shall be performed as follows:</p> <p>(1) At least weekly for a minimum of four inspections per month;</p> <p>(2) As often as is necessary to ensure that appropriate erosion and sediment controls have been properly constructed and maintained and to determine if additional or alternative control measures are required. The MDEQ strongly recommends that coverage recipients perform a "walk through" inspection of the construction site before anticipated storm events. [WPC-1]</p>

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**ACT6 (continued):**

**Submittal/Action Requirements:**

Condition No.	Condition
S-5	<p>RELEASE REPORTING:</p> <p>Releases into the environment of hazardous substances, oil, and pollutants or contaminants, which pose a threat to applicable water quality standards or causes a film, sheen or discoloration of State waters, shall be reported to the:</p> <ul style="list-style-type: none"><li>- Mississippi Emergency Management Agency (601) 933-6362 or (800) 222-6362; or</li><li>- National Response Center (800) 424-8802. [WPC-1]</li></ul>
S-6	<p>NONCOMPLIANCE REPORTING:</p> <p>(1) Anticipated Noncompliance. The owner or operator shall give at least 10 days advance notice, if possible, before any planned noncompliance with permit requirements. Giving notice of planned or anticipated noncompliance does not immunize the owner or operator from enforcement for that noncompliance.</p> <p>(2) Unanticipated Noncompliance. The owner or operator shall notify the MDEQ orally within 24 hours from the time he or she becomes aware of unanticipated noncompliance. A written report shall be provided to the MDEQ within 5 working days of the time he or she becomes aware of the circumstances. The report shall describe the cause, the exact dates and times, steps taken or planned to reduce, eliminate, or prevent reoccurrence and, if the noncompliance has not ceased, the anticipated time for correction. [WPC-1]</p>



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**ACT7 (Small Construction) Limitation Requirements:**

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**Limitation Requirements:**

Condition No.	Parameter	Condition
L-1		NON-NUMERIC LIMITATIONS:  Storm water discharges shall be free from:  (1) Debris, oil, scum, and other floating materials other than in trace amounts (2) Eroded soils and other materials that will settle to form objectionable deposits in receiving waters (3) Suspended solids, turbidity and color at levels inconsistent with the receiving waters (4) Chemicals in concentrations that would cause violation of State Water Quality Criteria in the receiving waters. [WPC-1]

**ACT8 (Small Construction) Record Keeping:**

**Record-Keeping Requirements:**

Condition No.	Condition
R-1	<p><b>RETENTION OF RECORDS:</b></p> <p>All records, reports and information resulting from activities required by this permit shall be retained by the owner or operator, on-site if practicable, for a period of at least three years from the date construction was completed. [WPC-1]</p>
R-2	<p><b>DOCUMENTATION OF INSPECTIONS:</b></p> <p>All inspections required by ACT6, S-4 of this permit must be documented on the Inspection and Certification Form provided at end of this permit. The form must be certified according to the signatory requirements outlined in ACT10, T-4 and T-5 of this permit. Documentation must include the day and time the inspection was performed, who performed the inspection, any deficiencies noted, and corrective action needed. Documentation of all inspections must be kept with the SWPPP. Inspections must continue until such time that planned construction activities have been completed, land disturbing activities have ceased and disturbed areas have been stabilized with no significant erosion occurring. To satisfy this requirement for linear projects, inspections may be conducted at representative locations for portions of the project that have been completed and stabilized. [WPC-1]</p>

Small Construction General Permit  
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**ACT9 (Small Construction) Termination of Permit Coverage:**

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**Submittal/Action Requirements:**

Condition No.	Condition
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**S-1 TERMINATION OF PERMIT REQUIREMENTS:**

- (1) If a SCNOI has not been requested by the Permit Board (SCNOI not submitted to MDEQ). Upon successful completion of all permanent erosion and sediment controls, inspections and reporting requirements are no longer required. The owner or operator must record the date of completion of all permanent erosion and sediment controls on the final inspection report.
- (2) If a SCNOI has been requested by the Permit Board (SCNOI submitted to MDEQ). Upon successful completion of all permanent erosion and sediment controls for a small construction project a written notification of such shall be submitted to the MDEQ. Permit requirements remain in effect until such time the coverage recipient receives written notice of coverage termination from MDEQ. [WPC-1]



Small Construction General Permit  
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**ACT10 (Small Construction) Standard Requirements Applicable to All Water Permits:**

**Narrative Requirements:**

Condition No.	Condition
T-1	<p><b>DUTY TO COMPLY:</b></p> <p>The coverage recipient must comply with all conditions of this permit. Any permit noncompliance constitutes a violation and is grounds for enforcement action; for coverage termination, revocation and reissuance, or modifications; or denial of a renewal application. [WPC-1]</p>
T-2	<p><b>DUTY TO MITIGATE:</b></p> <p>The owner or operator shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which is likely to adversely affect human health or the environment. [WPC-1]</p>
T-3	<p><b>DUTY TO PROVIDE INFORMATION:</b></p> <p>The owner or operator shall furnish to the Permit Board, within a reasonable time, any relevant information which the Permit Board may request to determine whether cause exists for modifying, revoking and reissuing, or terminating this permit, or to determine compliance with this permit. The owner or operator shall also furnish to the Permit Board, upon request, copies of records required to be kept by this permit. [WPC-1]</p>

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ACT10 (continued):

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Narrative Requirements:

Condition No.	Condition
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T-4 SIGNATORY REQUIREMENTS:

All SCNOIs and Requests for Recoverage shall be signed as follows:

(1) For a corporation by a responsible corporate officer. For this permit, a responsible corporate officer means:

a) a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making functions for the corporation; or

b) the manager of one or more manufacturing, production or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding \$25 million (in second-quarter 1980 dollars) if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures;

(2) For a partnership or sole proprietorship by a general partner or the proprietor, respectively; or

(3) For a municipal, State, Federal, or other public agency by either a principal executive officer or ranking elected official. For purposes of this section, a principal executive officer of a Federal agency includes: a) the chief executive officer of the agency, or b) a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency. [WPC-1]

T-5 DULY AUTHORIZED REPRESENTATIVE:

All reports required by this permit, and other information requested by the Permit Board shall be signed by a person described in ACT 10, T-4 above, or by a duly authorized representative of that person. A person is a duly authorized representative when:

(1) The authorization is made in writing and submitted to the Permit Board by a person described in ACT 10, T-4 above.

(2) The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated activity, such as: manager, operator of a well or well field, superintendent, person of equivalent responsibility, or an individual or position having overall responsibility for environmental matters for the company. (A duly authorized representative may be either a specified individual or position). [WPC-1]

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**ACT10 (continued):**

**Narrative Requirements:**

Condition No.	Condition
T-6	<p><b>CHANGES IN AUTHORIZATION:</b></p> <p>If an authorization is no longer accurate because a different individual or position has permit responsibility, a new authorization satisfying the requirements of ACT 10, T-4 and T-5 must be submitted to the Permit Board prior to or together with any reports, information or applications signed by the representative. [WPC-1]</p>
T-7	<p><b>CERTIFICATION:</b></p> <p>Any person signing documents under this section shall make the following certification:</p> <p>"I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations." [WPC-1]</p>
T-8	<p><b>OIL AND HAZARDOUS SUBSTANCE LIABILITY:</b></p> <p>Nothing in this permit shall relieve the owner or operator from responsibilities, liabilities, or penalties under Section 311 of the CWA. [WPC-1]</p>
T-9	<p><b>PROPERTY RIGHTS:</b></p> <p>The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges, nor does it authorize any injury to private property nor any invasion of personal rights, nor any infringement of Federal, State or local laws or regulations. [WPC-1]</p>
T-10	<p><b>SEVERABILITY:</b></p> <p>The provisions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit shall not be affected thereby. [WPC-1]</p>



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**ACT10 (continued):**

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**Narrative Requirements:**

Condition No.	Condition
T-11	<p><b>TRANSFERS:</b></p> <p>Coverage under this permit is not transferable to any person except after notice to and approval by the Permit Board. The Permit Board may require the coverage recipient to obtain another NPDES permit. Transfer of coverage requests shall be submitted to the Permit Board using the form provided at the end of this permit. [WPC-1]</p>
T-12	<p><b>PROPER OPERATION AND MAINTENANCE:</b></p> <p>The owner or operator shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by the owner or operator to achieve compliance with the conditions of this permit, including the Storm Water Pollution Prevention Plan. Proper operation and maintenance includes adequate laboratory controls with appropriate quality assurance procedures and requires the operation of backup or auxiliary facilities when necessary to achieve compliance with permit conditions. [WPC-1]</p>
T-13	<p><b>BYPASS PROHIBITION:</b></p> <p>Bypass (see 40 CFR 122.41(m)) is prohibited and enforcement action may be taken against an owner or operator for a bypass, unless: a) The bypass was unavoidable to prevent loss of life, personal injury, or severe property damage; b) There were no feasible alternatives to the bypass, such as the use of auxiliary treatment facilities, retention of untreated wastes, or maintenance during normal periods of equipment downtime. This condition is not satisfied if the owner or operator should, in the exercise of reasonable engineering judgment, have installed adequate backup equipment to prevent a bypass which occurred during normal periods of equipment downtime or preventive maintenance; and c) The owner or operator submitted notices per ACT 10, T-17 and/or T-18. [WPC-1]</p>
T-14	<p><b>UPSET CONDITIONS:</b></p> <p>An upset (see 40 CFR 122.41(n)) constitutes an affirmative defense to an action brought for noncompliance with technology-based permit limitations if a coverage recipient shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that: 1) An upset occurred and the coverage recipient can identify the specific cause(s) of the upset, 2) The permitted facility was at the time being properly operated, 3) The coverage recipient submitted notices per ACT 10, T-17 and/or T-18 and 4) The coverage recipient took remedial measures as required under ACT 10, T-2. In any enforcement proceeding, the coverage recipient has the burden of proof that an upset occurred. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review. [WPC-1]</p>

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**ACT10 (continued):**

**Narrative Requirements:**

Condition No.	Condition
T-15	<p><b>INSPECTION AND ENTRY:</b></p> <p>The owner or operator shall allow the Permit Board staff or an authorized representative, upon the presentation of credentials and other documents as may be required by law, to:</p> <p>(1) enter upon the owner's or operator's premises where a regulated activity is located or conducted or where records must be kept under the conditions of this permit;</p> <p>(2) have access to and copy at reasonable times any records that must be kept under the conditions of this permit; and</p> <p>(3) inspect at reasonable times any facilities or equipment. [WPC-1]</p>
T-16	<p><b>PERMIT ACTIONS:</b></p> <p>This permit may be modified, revoked and reissued, or terminated for cause. A request by the owner or operator for permit or coverage modification, revocation and reissuance, or termination, or a certification of planned changes or anticipated noncompliance does not stay any permit condition. [WPC-1]</p>
T-17	<p><b>ANTICIPATED NONCOMPLIANCE:</b></p> <p>The owner or operator shall give at least 10 days advance notice, if possible, before any planned noncompliance with permit requirements. [WPC-1]</p>
T-18	<p><b>UNANTICIPATED NONCOMPLIANCE:</b></p> <p>The owner or operator shall notify the MDEQ orally within 24 hours from the time he or she becomes aware of unanticipated noncompliance. A written report shall be provided to the MDEQ within 5 working days of the time he or she becomes aware of the circumstances. The report shall describe the cause, the exact dates and times, steps taken or planned to reduce, eliminate, or prevent reoccurrence and, if the noncompliance has not ceased, the anticipated time for correction. [WPC-1]</p>

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ACT10 (continued):

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Narrative Requirements:

Condition No.	Condition
T-19	<p>REOPENER CLAUSE:</p> <p>If there is evidence indicating potential or realized impacts on water quality due to discharges covered by this permit, the owner or operator may be required to obtain individual permit or an alternative general permit in accordance with ACT 3, S-2 or the permit may be modified to include different limitations and/or requirements. [WPC-1]</p>
T-20	<p>PERMIT MODIFICATION:</p> <p>Permit modification or revocation will be conducted according to 40 CFR 122.62, 122.63, 122.64 and 124.5. [WPC-1]</p>
T-21	<p>CIVIL AND CRIMINAL LIABILITY:</p> <p>(1) Any person who violates a term, condition or schedule of compliance contained within this permit or the Mississippi Air and Water Pollution Control Law is subject to the actions defined by the Mississippi Air and Water Pollution Control Law.</p> <p>(2) Except as provided in permit conditions on "Bypassing" and "Upsets", nothing in this permit shall be construed to relieve the coverage recipient from civil or criminal penalties for noncompliance.</p> <p>(3) It shall not be the defense of the coverage recipient in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit. [WPC-1]</p>



Small Construction General Permit  
Facility Requirements

**ACT11 (Small Construction) Definitions:**

**Narrative Requirements:**

Condition No.	Condition
T-1	BEST MANAGEMENT PRACTICES (BMPs) means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practice to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage. [WPC-1]
T-2	CONSTRUCTION ACTIVITY as used in this permit, includes construction activity as defined in 40 CFR part 122.26(b)(14)(x). This includes a disturbance to the land that results in the change in topography, existing soil cover (both vegetative and non-vegetative), or the existing topography that may result in accelerated storm water runoff, leading to soil erosion and movement of sediment into surface waters or drainage systems. Examples of construction activity may include clearing, grading, filling and excavating. Construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the site. [WPC-1]
T-3	CONTROL MEASURE as used in this permit, refers to any Best Management Practice or other method used to prevent or reduce the discharge of pollutants to waters of the State. [WPC-1]
T-4	COMMENCEMENT OF CONSTRUCTION ACTIVITIES means the initial disturbance of soils associated with clearing, grading, or excavating activities or other construction-related activities. [WPC-1]
T-5	CLEAN WATER ACT (CWA) refers to the Federal Water Pollution Control Act, 33 U.S.C. section 1251 et seq. [WPC-1]
T-6	DISCHARGE OF STORM WATER ASSOCIATED WITH SMALL CONSTRUCTION ACTIVITY as used in this permit, refers to a discharge of pollutants in storm water runoff from areas where soil disturbing activities (e.g., clearing, grading, or excavation), construction materials or equipment storage or maintenance (e.g., fill piles, borrow area, concrete truck washout, fueling), or other industrial storm water directly related to the construction process (e.g., concrete) are located. [WPC-1]
T-7	EXECUTIVE DIRECTOR means the Executive Director of the Department of Environmental Quality. [WPC-1]
T-8	FACILITY OR ACTIVITY means any NPDES "point source" or any other facility or activity (including land or appurtenances thereto) that is subject to regulation under the NPDES program. [WPC-1]
T-9	FINAL STABILIZATION means all soil disturbing activities at the site have been completed, and that a uniform perennial vegetative cover with a density of at least 70% for the area has been established or equivalent measures have been employed. [WPC-1]

Small Construction General Permit  
Facility Requirements

ACT11 (continued):

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Narrative Requirements:

Condition No.	Condition
T-10	LARGE CONSTRUCTION ACTIVITY includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than five (5) acres of land or will disturb less than five (5) acres of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than five (5) acres. Large construction activity is covered by the Large Construction General Permit. [WPC-1]
T-11	LARGER COMMON PLAN OF DEVELOPMENT OR SALE means a contiguous area where multiple separate and distinct construction activities are occurring under one plan. The plan in a common plan of development or sale is broadly defined as any announcement or piece of documentation (including a sign, public notice or hearing, sales pitch, advertisement, drawing, permit application, zoning request, computer design, etc.) or physical demarcation (including boundary signs, lot stakes, surveyor markings, etc.) indicating that construction activities may occur on a specific plot. [WPC-1]
T-12	LINEAR PROJECT means a land disturbing activity as conducted by an underground/overhead utility or highway department, including but not limited to any cable line or wire for the transmission of electrical energy; any conveyance pipeline for transportation of gaseous or liquid substance; any cable line or wire for communications; or any other energy resource transmission ROW or utility infrastructure, e.g., roads and highways. Activities include the construction and installation of these utilities within a corridor. Linear project activities also include the construction of access roads, staging areas, and borrow/spoil sites associated with the linear project. [WPC-1]
T-13	NPDES means the National Pollutant Discharge Elimination System, which is a program administered under the authority of the Clean Water Act that prohibits the discharge of pollutants into waters of the United States unless a special permit is issued. [WPC-1]
T-14	OWNER OR OPERATOR for the purpose of this permit and in the context of storm water associated with construction activity, means any party associated with a construction project that meets either of the following two criteria:  (1) The party has operational control over construction plans and specifications, including the ability to make modifications to those plans and specifications; or  (2) The party has day to day operational control of those activities at a project which are necessary to ensure compliance with a storm water pollution prevention plan for the site or other permit conditions (e.g., they are authorized to direct workers at a site to carry out activities required by the SWPPP or comply with other permit conditions). This definition is provided to inform permittees of MDEQ's interpretation of how the regulatory definitions of "owner or operator" and "facility or activity" are applied to discharges of storm water associated with construction activity. [WPC-1]
T-15	PERMIT BOARD means the Mississippi Environmental Quality Permit Board established pursuant to Miss. Code Ann. 49-17-28. [WPC-1]
T-16	POLLUTANT is defined at 40 CFR 122.2. A partial listing from this definition includes: dredged spoil, solid waste, sewage, garbage, sewage sludge, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, sediment, silt, cellular dirt, and industrial or municipal waste. [WPC-1]

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**ACT11 (continued):**

**Narrative Requirements:**

Condition No.	Condition
T-17	SMALL CONSTRUCTION ACTIVITY is defined at 40 CFR 122.26(b)(15) and incorporated here by reference. A small construction activity includes clearing, grading, and excavating resulting in a land disturbance that will disturb equal to or greater than one (1) acre and less than five (5) acres of land or will disturb less than one (1) acre of total land area but is part of a larger common plan of development or sale that will ultimately disturb equal to or greater than one (1) acre and less than five (5) acres. Small construction activity does not include routine maintenance that is performed to maintain the original line and grade, hydraulic capacity, or original purpose of the facility. [WPC-1]
T-18	STATE WATERS means all waters within the jurisdiction of this State, including all streams, lakes, ponds, wetlands, impounding reservoirs, marshes, watercourses, waterways, wells, springs, irrigation systems, drainage systems, and all other bodies or accumulations of water, surface and underground, natural or artificial, situated wholly or partly within or bordering upon the State, and such coastal waters as are within the jurisdiction of the State, except lakes, ponds, or other surface waters which are wholly landlocked and privately owned, and which are not regulated under the Federal Clean Water Act (33 U.S.C.1251 et seq.). [WPC-1]
T-19	STORM WATER means rainfall runoff, snowmelt runoff, and surface runoff. [WPC-1]
T-20	STORM WATER POLLUTION PREVENTION PLAN (SWPPP) means a plan that includes site map(s), an identification of construction/contractor activities that could cause pollutants in the storm water, and a description of measures or practices to control these pollutants. [WPC-1]
T-21	SUCCESSFUL COMPLETION OF ALL PERMANENT EROSION AND SEDIMENT CONTROLS means when land disturbing construction activities have been completed and disturbed areas have been stabilized with no significant erosion occurring. [WPC-1]
T-22	WPC-1 means the State of Mississippi's Wastewater Regulations for National Pollutant Discharge Elimination System (NPDES) Permits, Underground Injection Control (UIC) Permits, State Permits, Water Quality Based Effluent Limitations and Water Quality Certification. [WPC-1]





MISSISSIPPI DEPARTMENT OF  
ENVIRONMENTAL QUALITY

To: Construction Project Owner or Contractor (Operator)

From: Mississippi Department of Environmental Quality (MDEQ)  
Environmental Permits Division

Subject: Storm Water Requirements for Small Construction Activities that Disturb  
One (1) Acre to Less Than Five (5) Acres

On December 8, 1999 EPA published a final rule expanding the current Phase I Storm Water Program. The rule, among other things, reduced the five-acre construction threshold to one acre and set a deadline of March 10, 2003 for implementation. This is a nationwide requirement. The new regulatory acreage (1 acre to less than 5 acres) is designated "small construction" and the existing Phase I regulatory acreage (5 acres and greater) is designated "large construction."

MDEQ now has two different storm water general permits that cover construction activities in Mississippi. Construction activities that disturb one acre to less than five acres require coverage under the Small Construction General Permit issued March 11, 2003. In addition, existing small construction projects that started construction before March 10, 2003 must also get permit coverage. The "larger common plan of development or sale" requirement, where the total acreage is based on cumulative planned disturbance, is applicable to both general permits.

Construction activities that disturb five acres and greater continue to require coverage under the Phase I Construction General Permit. This permit is now designated the "Large Construction General Permit." The requirements for the Large Construction General Permit have not changed. The current permit was issued on March 28, 2000 and will expire March 27, 2005.

The requirements of the Small Construction General Permit are similar to the Large Construction General Permit. However, there is one fundamental difference. **There will be no submittals to MDEQ unless specifically requested.** The owner or operator must follow the requirements of the attached Small Construction General Permit. The entire permit should be carefully read, but the basic requirements are:

- Complete the Small Construction Notice of Intent (SCNOI) application form found on the last page of the general permit and keep the form on the project site or locally available.

- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) as described and required by Part III of the general permit. A SWPPP is required to stop or reduce the amount of pollutants in storm water discharges (see page 5, 6 & 7 of the general permit). In addition, a guidance manual that can help in developing a SWPPP can be found on our web site. This plan must also be kept at the project site for the contractor to follow.
- Inspect the site weekly and after rainfall events of a half-inch or more to make sure the sediment and erosion controls are still working. This information must be recorded on Inspection Form Part IX (see page 15 of the general permit). Again these forms are to be kept on site.

Once the requirements of the Small Construction General Permit are followed the owner or operator is authorized to storm water associated with construction activity. If you have any questions or need help in completing any of the forms or developing the SWPPP contact the EPD Construction Branch at 601/961-5171. This information can also be found on our web site at [www.deq.state.ms.us/epd/general.asp](http://www.deq.state.ms.us/epd/general.asp).

To: Construction Project Owner or Contractor (Operator)

From: Mississippi Department of Environmental Quality (MDEQ)  
Environmental Permits Division

Subject: Storm Water Requirements for Small Construction Activities that Disturb  
One (1) Acre to Less Than Five (5) Acres

On December 8, 1999 EPA published a final rule expanding the current Phase I Storm Water Program. The rule, among other things, reduced the five-acre construction threshold to one acre and set a deadline of March 10, 2003 for implementation. This is a nationwide requirement. The new regulatory acreage (1 acre to less than 5 acres) is designated "small construction" and the existing Phase I regulatory acreage (5 acres and greater) is designated "large construction."

MDEQ now has two different storm water general permits that cover construction activities in Mississippi. Construction activities that disturb one acre to less than five acres require coverage under the Small Construction General Permit issued March 11, 2003. In addition, existing small construction projects that started construction before March 10, 2003 must also get permit coverage. The "larger common plan of development or sale" requirement, where the total acreage is based on cumulative planned disturbance, is applicable to both general permits.

Construction activities that disturb five acres and greater continue to require coverage under the Phase I Construction General Permit. This permit is now designated the "Large Construction General Permit."

The requirements of the Small Construction General Permit are similar to the Large Construction General Permit. However, there is one fundamental difference. **There will be no submittals to MDEQ unless specifically requested.** The owner or operator must follow the requirements of the attached Small Construction General Permit. The entire permit should be carefully read, but the basic requirements are:

- Complete the Small Construction Notice of Intent (SCNOI) application form found on the last page of the general permit and keep the form on the project site or locally available.
- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) as described and required by Part III of the general permit. A SWPPP is required to stop



or reduce the amount of pollutants in storm water discharges (see page 5, 6 & 7 of the general permit). In addition, a guidance manual that can help in developing a SWPPP can be found on our web site. This plan must also be kept at the project site for the contractor to follow.

- Inspect the site weekly and after rainfall events of a half-inch or more to make sure the sediment and erosion controls are still working. This information must be recorded on Inspection Form Part IX (see page 15 of the general permit). Again these forms are to be kept on site.

Once the requirements of the Small Construction General Permit are followed the owner or operator is authorized to discharge storm water associated with construction activity. If you have any questions or need help in completing any of the forms or developing the SWPPP contact the EPD Construction Branch at 601/961-5171. This information can also be found on our web site at [www.deq.state.ms.us/MDEQ.nsf/page/epd\\_epdgeneral](http://www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral).

To: Construction Project Owner or Contractor (Operator)

From: Mississippi Department of Environmental Quality (MDEQ)  
Environmental Permits Division

Subject: Storm Water Requirements for Small Construction Activities that Disturb  
One (1) Acre to Less Than Five (5) Acres

On December 8, 1999 the Environmental Protection Agency published a final rule expanding the Storm Water Program. This rule, among other things, reduced the five acre construction threshold to one acre. The result of the final rule is that Mississippi now has two different storm water general permits covering construction activities. Construction activities that disturb one acre to less than five acres require coverage under the Small Construction General Permit. Construction activities that disturb five acres and greater require coverage under the Large Construction General Permit. The "larger common plan of development or sale" requirement, where the total acreage is based on cumulative planned disturbance, is applicable to both general permits.

The requirements of the Small Construction General Permit are similar to the Large Construction General Permit. However, there is one fundamental difference. **There will be no submittals to MDEQ unless specifically requested.** The owner or operator must follow the requirements of the Small Construction General Permit. The entire permit should be carefully read, but the basic requirements are:

- Complete the Small Construction Notice of Intent (SCNOI) application form found at the end the general permit and keep it at the project site or locally available.
- Develop and implement a Storm Water Pollution Prevention Plan (SWPPP) as described and required by "Activity 5" of the general permit. A SWPPP is required to stop or reduce the amount of pollutants in storm water discharges. In addition, a guidance manual that can help in developing a SWPPP can be found on our website. This plan must also be kept at the project site for the contractor to follow and inspectors to review.
- Inspect the site weekly for a minimum of four inspections per month to make sure the sediment and erosion controls are working properly. This information must be recorded on the Inspection Form found on page 28 of the general permit. Again these forms are to be kept on site or locally available.

Once the requirements of the Small Construction General Permit are followed the owner or operator is authorized to discharge storm water associated with construction activity. If you have any questions or need help in completing any of the forms or developing the SWPPP contact the EPD Construction Branch at 601/961-5171. This information can also be found on our website at [www.deq.state.ms.us/MDEQ.nsf/page/epd\\_epdgeneral](http://www.deq.state.ms.us/MDEQ.nsf/page/epd_epdgeneral).

**Small Construction Notice of Intent (SCNOI)**



# Submit only upon request from MDEQ



## SMALL CONSTRUCTION NOTICE OF INTENT (SCNOI)

GENERAL NPDES PERMIT MSR15 \_\_\_\_\_ (Number to be assigned by MDEQ if submitted)

Prior to the commencement of small construction activity (see Small Construction General Permit ACT11, T-17), the owner or operator of a small construction project must complete this form and develop a Storm Water Pollution Prevention Plan (SWPPP) as required by ACT5 of Mississippi's Small Construction General Permit. This SCNOI and SWPPP shall be submitted to the Mississippi Department of Environmental Quality (MDEQ) only upon request from MDEQ; however, the SCNOI and SWPPP must be maintained at the permitted site or locally available in case inspector review is necessary. Attachments with this SCNOI must include: a USGS quad map or copy showing site location (only if required to be submitted to MDEQ) and a Storm Water Pollution Prevention Plan (SWPPP). All questions must be answered – answer "NA" if the question is not applicable.

### PROJECT INFORMATION

**OWNER CONTACT PERSON:**

David O'Connor

**OWNER COMPANY NAME:**

ArvinMeritor, Inc.

**OWNER STREET (P.O. BOX):**

2135 West Maple Road

**OWNER CITY:**

Troy

STATE: Michigan ZIP: 48084-7186

**OWNER PHONE # (INCLUDE AREA CODE):**

(248) 435-2706

**OPERATOR (if different from owner) CONTACT PERSON:**

Ihsan Al-Fayyomi

**OPERATOR COMPANY:**

Brown and Caldwell Constructors

**OPERATOR STREET (P.O. BOX):**

4700 Lakehurst Court, Suite 100

**OPERATOR CITY:**

Columbus

STATE: Ohio ZIP: 43016

**OPERATOR PHONE # (INCLUDE AREA CODE):**

(614) 410-6144

**PROJECT NAME:** Sludge Lagoon Closure

**DESCRIPTION OF CONSTRUCTION ACTIVITY:** Closure of a former surface impoundment

**ACREAGE DISTURBED (to be covered by this permit, area must be less than five (5) acres):** 2.2

**PHYSICAL SITE ADDRESS (If not available, indicate the nearest named road. For linear projects, indicate the beginning of the project and identify all counties the project traverses.):**

**STREET:** 635 Highway 332

**CITY:** Grenada **COUNTY:** Grenada **ZIP:** 38901

**NEAREST NAMED RECEIVING STREAM:** Riverdale Creek

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

**Signature**

Vernon G. Baker, II

**Printed Name**

4-20-2010  
**Date Signed**

Sr. Vice President/General Counsel  
**Title**

**'This application shall be signed according to the Small Construction General Permit, ACT10, T-4.**

If requested, please submit this form to:

Chief, Environmental Permits Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

## Inspection and Certification Forms

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus STATE: Ohio ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
04/26/2010	7:20 AM	<input type="checkbox"/>	RICHARD A. ISAAC
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): 04/23/2010 and 04/24/2010 rainfall  
≈ 1.3 inches; Silt fence good condition; ponded water in two areas - west and SW

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): When area dry out - check to make  
sure silt fence trench is intact at low areas and add soil, if necessary

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Richard A. Isaac  
Printed Name

Date

4/26/2010  
Principal Engineer  
Title

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, 8-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus STATE: Ohio ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
05/03/2010	07:30 AM	<input type="checkbox"/>	ERIK G. McPHERSON
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): 05/01/10 + 05/02/10 ~ 3.0 inches at rainfall; silt fence is in good condition. Ponded areas (xx) SW and East side

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): When areas dry out - check to make sure silt fence trench is intact at low areas and add soil, if necessary

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Richard A. Isaac  
Printed Name

Date

5/5/2010  
PRINCIPAL ENGINEER  
Title

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, 8-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
05/11/2010	7:15 am	<input type="checkbox"/>	RICHARD A. ISAAC
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): No deficiencies observed; silt fence in good condition; no erosion or sediment observed outside fence line

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Richard A. Isaac

Date

Title

5/11/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus STATE: Ohio ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
05/17/10	7:20 am	<input type="checkbox"/>	RICHARD A. ISAAC
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): No deficiencies observed; silt fence in good condition; no erosion or sediment observed outside silt fence line

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

RICHARD A. ISAAC

Date

Title

5/17/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus STATE: Ohio ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
05/22/10	7:20 am	<input checked="" type="checkbox"/>	RICHARD A. ISAAC
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): NW corner of silt fence - trench fill has settled; rest of silt fence in good condition 05/22/10

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): Contractor to place soil fill in silt fence trench - completed 5/24/10

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Richard A. Isaac  
Printed Name

Date

5/22/2010  
PRINCIPAL ENGINEER  
Title

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
05/26/10	7:49 am	<input type="checkbox"/>	RICHARD A. LEAL
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): Walked silt fence line - silt fence intact;  
no sediment observed outside silt fence

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature  
RICHARD A. LEAL  
Printed Name

Date 5/26/2010  
Title PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, 8-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sledge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

INSPECTION DOCUMENTATION			
DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
06/02/10	8:38 AM	<input type="checkbox"/>	Richard A. Iscoe
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): Walked silt fence line - silt fence intact, NO sediment observed outside silt fence

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Richard A. Iscoe

Date

Title

6/2/2010

Principal Engineer

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus STATE: Ohio ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
06/07/10	8:55 AM	<input type="checkbox"/>	RICHARD A. ISACK
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): NO DEFICIENCIES, SILT FENCE INTACT, NO OBSERVED SEDIMENT OUTSIDE OF THE SILT FENCE

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Richard A. Isack

Date

Title

6/7/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

INSPECTION DOCUMENTATION			
DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
06/15/2010	8:05 am	<input type="checkbox"/>	RICHARD A. KERR
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): No deficiencies observed; silt fence in good condition; no erosion or sediment observed outside silt fence

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Richard A. Kerr

Date

Title

6/15/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure

STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada

PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus

STATE: Ohio

ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi

CONTACT PHONE NUMBER: (614) 410-6144

INSPECTION DOCUMENTATION			
DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
06/21/10	16:10 PM	<input type="checkbox"/>	RICHARD A. ISARD
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): No deficiencies; silt fence in good condition; no erosion or sediment observed outside silt fence

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary):

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

RICHARD A. ISARD

Date

Title

6/21/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
06/28/2010	10:30 AM	<input type="checkbox"/>	RICHARD A. KROE
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): No deficiencies; all fine in good condition; no erosion or sediment observed outside silt fence

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

RICHARD A. KROE

Date

Title

6/28/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, 8-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
07/06/2010	7:40 AM	<input type="checkbox"/>	RICHARD A. KAY
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): No deficiencies; silt fence in good condition; no erosion or sediment observed outside the silt fence.

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Richard A. Kay

Date

Title

7/6/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
07/07/2010	7:10 AM	<input checked="" type="checkbox"/>	RICHARD A. ISAC
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): Silt fence intact; sediment observed outside silt fence in southwest corner;

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): WBS compact to anchor silt fence at the SW corner and clean up sediment on 7/8/10

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

RICHARD A. ISAC

Date

Title

7/7/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
07/13/2010	7:30 AM	<input type="checkbox"/>	Richard A. Isak
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): No deficiencies; silt fence in good condition; no erosion or sediment observed outside of silt fence

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary):

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Date

Title

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus STATE: Ohio ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

INSPECTION DOCUMENTATION			
DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
07/19/2010	8:30 AM	<input checked="" type="checkbox"/>	RICHARD P. BOON
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): Silt fence down in two locations - at West end and Southeast corner; all other locations - silt fence in good condition

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): WESCOFFS will repair the silt fence

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

RICHARD A. BOON

Date

Title

7/19/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
07/26/2010	7:45 AM	<input type="checkbox"/>	NATHAN A. GIVENS
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): NO OBSERVED DEFICIENCIES; SILT FENCE  
IN GOOD CONDITION; NO EROSION OR SEDIMENT OBSERVED OUTSIDE OF SILT FENCE.

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary):

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Date

Title

7/29/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
07/27/2010	7:30 AM	<input checked="" type="checkbox"/>	NATHAN A. GIVENS
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): SILT FENCE DOWN IN THREE LOCATIONS ALONG WEST SIDE. NO SILT OBSERVED OUT SIDE OF FENCE. ALL OTHER LOCATIONS - GOOD CONDITION.

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): WBS COMPASS WILL REPAIR SILT FENCE.

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Robert A. Isaac

Date

Title

8/2/2010

PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors

PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010

PROJECT STREET ADDRESS: 635 Highway 332

PROJECT CITY: Grenada PROJECT COUNTY: Grenada

OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100

MAILING CITY: Columbus STATE: Ohio ZIP: 43016

CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
07/28/2010	8:45 AM	<input type="checkbox"/>	NATHAN A. GIVENS
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): NO OBSERVED DEFICIENCIES; NO SEDIMENT OBSERVED OUTSIDE OF THE SILT FENCE; FENCE IN GOOD CONDITION.

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature

Printed Name

Nathan A. Givens

Date

Title

8/2/2010

PE NAPPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: <u>Brown and Caldwell Constructors</u>	
PROJECT NAME: <u>Sludge Lagoon Closure</u>	STARTUP DATE: <u>3/29/2010</u>
PROJECT STREET ADDRESS: <u>635 Highway 332</u>	
PROJECT CITY: <u>Grenada</u>	PROJECT COUNTY: <u>Grenada</u>
OPERATOR MAILING ADDRESS: <u>4700 Lakehurst Court, Suite 100</u>	
MAILING CITY: <u>Columbus</u>	STATE: <u>Ohio</u> ZIP: <u>43016</u>
CONTACT PERSON: <u>Ihsan Al-Fayyomi</u>	CONTACT PHONE NUMBER: <u>(614) 410-6144</u>

## INSPECTION DOCUMENTATION

DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
08/12/2010	9:45 AM	<input type="checkbox"/>	Brian Jones
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary): Fence appears to be in good condition. Sediment was not observed outside the silt fence.

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary): \_\_\_\_\_

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature  
Ricardo A. Lopez  
Printed Name

Date 8/16/2010  
Title PRINCIPAL ENGINEER

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



## Storm Water Pollution Prevention Plan (SWP3)



**STORM WATER POLLUTION PREVENTION PLAN**

**Solid Waste Management Unit 4  
Sludge Lagoon Closure**

**Grenada, MS**

<b>SUBMITTAL REVIEW</b>	
REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS OF DIMENSIONS OR DETAILS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR DEVIATIONS FROM CONTRACT REQUIREMENTS NOT SPECIFICALLY INDICATED ON THIS SUBMITTAL.	
<input checked="" type="checkbox"/> NO EXCEPTIONS TAKEN	<input type="checkbox"/> MAKE CORRECTIONS NOTED
<input type="checkbox"/> AMEND AND RESUBMIT	<input type="checkbox"/> REJECTED-SEE REMARKS
Date <u>4/21/10</u>	By <u>RAI</u>
<b>BROWN AND CALDWELL CONSTRUCTORS</b>	

**Submitted To:**

**Brown & Caldwell  
and ArvinMeritor**

**Prepared By:**

**WRScompass  
954 West Washington Boulevard  
5th Floor  
Chicago, Illinois 60607**

**April 19, 2010**

**Revision 0**

**Storm Water Pollution Prevention Plan**

**Solid Waste Management Unit 4 - Sludge Lagoon Closure**

**Prepared by:**

**WRSScompass**

**954 West Washington Boulevard**

**5th Floor**

**Chicago, Illinois 60607**

**Prepared for:**

**Brown & Caldwell**

**Prepared by:**

---

**Reviewed by:**

---

---

**April 19, 2010**



## TABLE OF CONTENTS

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1.0 CORRECTIVE MEASURES & TEMPORARY CONTROLS.....	1-1
2.0 HOUSEKEEPING PRACTICES.....	2-2
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## FIGURE

FIGURE 1: SITE LOCATION MAP

FIGURE 2: PROJECT DRAWING C-6

FIGURE 3: PROJECT DRAWINGS C-7

## LIST OF APPENDICES

### Appendix

A	Small Construction Notice of Intent
B	Inspection Form

## Introduction

The site work is the result of the remedial activities of a metal stamping facility that is located at 635 Highway 332, Grenada, Mississippi. This Storm Water Pollution Prevention Plan (SWPPP) was prepared to support the remediation activities outlined in the Work Plan, as it relates to the remediation of Solid Waste Management Unit 4 (SWMU 4), e.g., the Sludge Lagoon. The scope of work of these plans does not include remedial activities of any other SWMUs or areas of concern.

This plan has been prepared and will be implemented in accordance with the Small Construction Notice of Intent (SCNOI) and its corresponding cover letter and attachments dated April 20, 2010 as prepared by Brown and Caldwell. Please refer to Appendix A, Small Construction Notice of Intent. Soil remedial activities planned for SWMU 4 site include: selective demolition, dewatering/water management of the sludge lagoon, *in-situ* solidification (ISS) of approximately 8,240 cubic yards of saturated sludge, grading of the berms and preparation of the cover sub-base, and construction of a cover system to enclose the solidified materials. The location of the SWMU 4 is shown on the USGS Map found at Figure 1 of this plan.

The party responsible for assuring the implementation of this plan is:

Ihsan Al-Fayyomi  
Vice President  
Brown Caldwell Constructors  
4700 Lakehurst Court, Suite 100  
Columbus, Ohio 43016  
614-410-6144

Richard Isaac  
Principal Engineer  
Brown and Caldwell  
4700 Lakehurst Court, Suite 100  
Columbus, Ohio 43016  
614-410-6144

A copy of this Storm Water Pollution Prevention Plan will be kept on-site for reference during performance of the work. There are no sources of non-storm water discharge applicable to this plan.

### 1.0 Corrective Measures & Temporary Controls

WRScompass will conduct the following Corrective Measures on behalf of the owner:

- Site Preparation
- Install Erosion and Sediment Controls for Construction
- Clearing and Grubbing
- Construction of Access Road
- Excavation and Consolidation of Waste
- Construction of Multi-Layer Landfill Cap
- Construction of Permanent Storm Water Management Controls
- Surveying
- Topsoil Placement, Seeding and Site Restoration
- Controls
- Vegetative Controls:
  - A 15 foot undisturbed vegetative buffer zone will be maintained around the perimeter of the site.
- Existing trees will be preserved where possible

Temporary erosion and sediment control measures will include the installation of wire reinforced silt fence, storm water diversion berms and storm water shallow diversion swales. Mitigation of excessive storm water run on to the site will be mitigated with these same temporary control measures. Rip Rap and / or stone lined silt traps may be installed as needed to prevent sediments from eroding from the site in high flow concentration areas such as swales or ditches. Please refer to Brown and Caldwell Project Drawing C-6 which illustrates the location of the silt fence installation.



### 2.0 Housekeeping Practices

All equipment maintenance and repair site will be done in a controlled area. Trash bins will be placed at convenient locations throughout the support zone. The main trash bin will be located near the office trailer and will be picked up on a routine basis. Paints, solvents, fertilizers or any other potential toxic materials will not be imported to the site. Portable sanitary facilities will be provided for workers and be staged in the support zone. Fuels and oils will only be stored on-site at a minimum necessary and will be stored with-in secondary containment.

### **3.0 Post Construction/Storm Water Management Measures**

Permanent erosion and sediment control will include final site finish grading for positive drainage. Permanent vegetative cover will be established and maintained at the site as indicated on Brown and Caldwell Project Drawings C6 and C7. The Storm Water Management Measures will be constructed as soon as possible.

### 4.0 Construction Sequencing

WRSScompass will use excavators to perform the in-situ mixing of the reagents and the lagoon sludge material.

WRSScompass' plan for ISS sequencing is as follows:

- Install erosion control measures, including silt fence,
- Remove the topsoil from the ISS perimeter area and stockpile on site,
- Perform selective demolition activities,
- Dewater Sludge Lagoon,
- Build mixing platform,
- Perform the demonstration portion of the ISS process,
- Submit the ISS Demonstration report,

Following acceptance of the demonstration results and recommendations, conduct full scale ISS treatment in the ISS Area while managing swell.



### 5.0 Maintenance Plan

All disturbed areas and erosion and sediment controls will be checked after each significant rainfall, but not less than once per week. All needed repairs will be made within 24 hours. Sediment will be removed from the silt fences when accumulated sediment has reached 50 % capacity. Non-functional silt fence will be replaced. Vegetated areas will be maintained to provide proper ground cover – reseed, fertilize and mulch as needed.

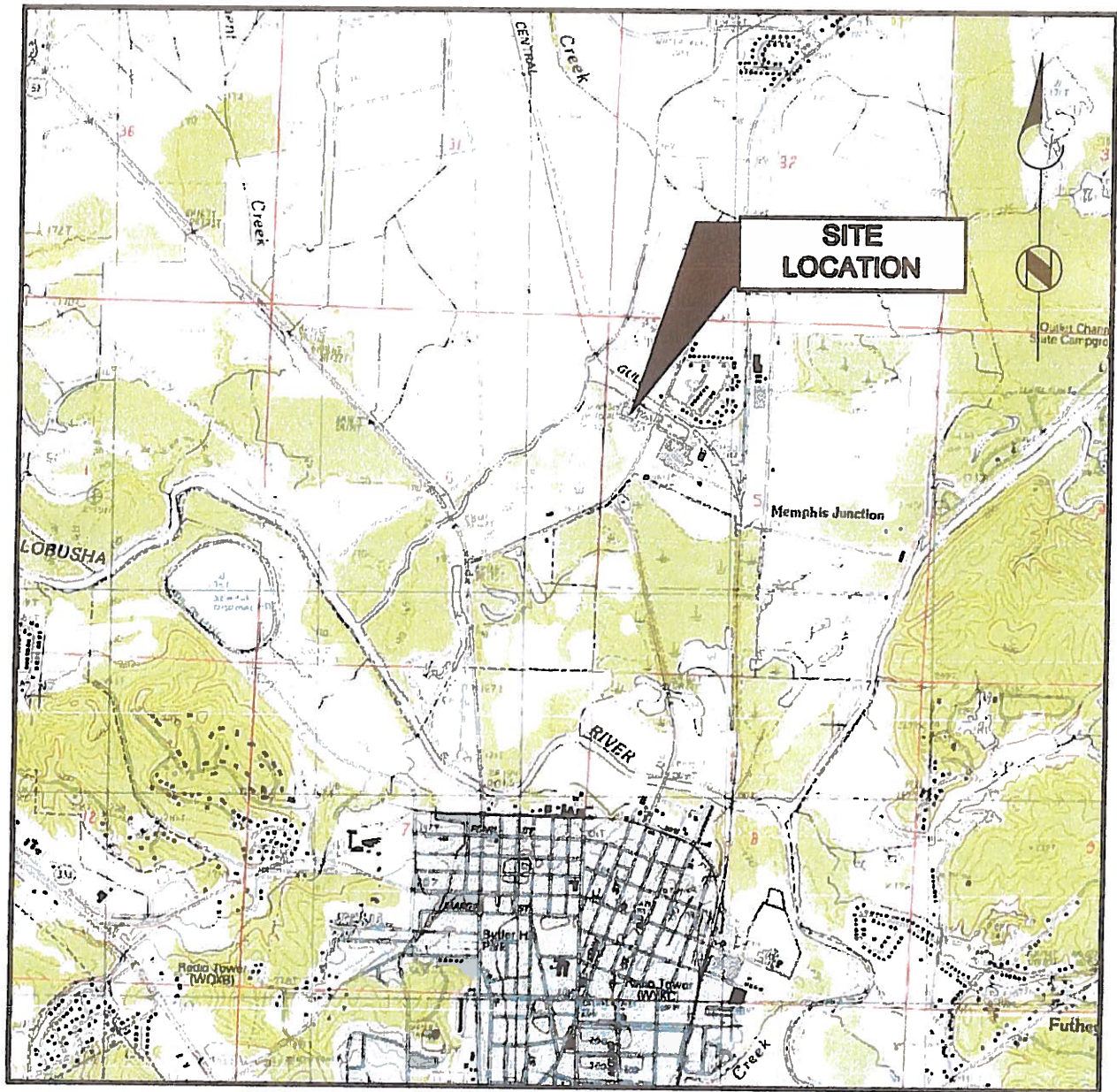
Weekly inspections of the erosion protection measures will be documented on inspection forms. A copy of the inspection form is found at Appendix B.

### 6.0 Education and Training

On-site personnel will receive training on the construction, inspection, and maintenance of erosion protection and sedimentation controls. The training will be given during the regular daily and weekly site safety meetings. Workers will be trained how to install the preventative measures, what deficiencies to watch for and how to repair or replace the needed measures.

**FIGURE 1: SITE LOCATION MAP**

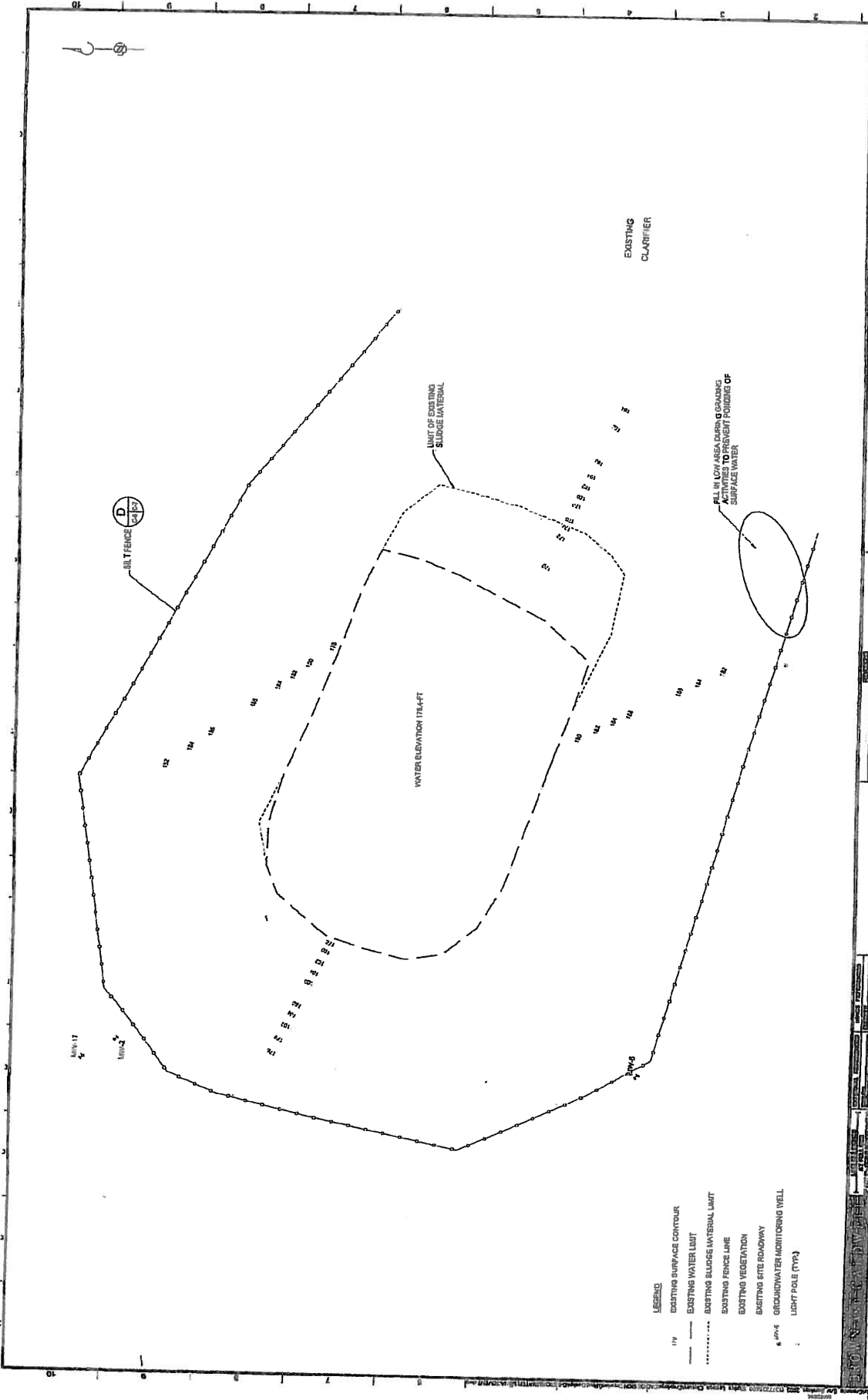




**SOURCE: GRENADA QUADRANGLE, MISSISSIPPI, 7.5-MINUTE SERIES  
PROVISIONAL EDITION 1983  
SCALE: 1" = 2500'**

**FIGURE 1  
SITE LOCATION MAP**

**FIGURE 2: PROJECT DRAWING C-6**



<b>PROJECT INFORMATION</b> PROJECT NAME: <b>SOLID WASTE MANAGEMENT UNIT 4</b> PROJECT NUMBER: <b>C-8</b> PROJECT LOCATION: <b>COLUMBUS, OHIO</b>		<b>DATE</b> DATE: <b>01/11/01</b> BY: <b>XXX</b> CHECKED: <b>XXX</b> APPROVED: <b>XXX</b>	
<b>REVISIONS</b> NO.   DATE   DESCRIPTION 1   01/11/01   ISSUED FOR BIDDING		<b>SCALE</b> 0 20 40 FEET	
<b>DRAWING ISSUED FOR BIDDING PURPOSES ONLY. NOT TO BE USED FOR CONSTRUCTION</b>			
<b>APPROVED FOR CONSTRUCTION</b> AUTHORIZED BY: <b>XXX</b> DATE: <b>01/11/01</b>			



**FIGURE 3: PROJECT DRAWING C-7**

APPROVED	SUBMITTED	DATE

**APPENDIX A**  
**SMALL CONSTRUCTION NOTICE OF INTENT**



# Submit only upon request from MDEQ



## SMALL CONSTRUCTION NOTICE OF INTENT (SCNOI)

GENERAL NPDES PERMIT MSR15 \_\_\_\_\_ (Number to be assigned by MDEQ if submitted)

Prior to the commencement of small construction activity (see Small Construction General Permit ACT11, T-17), the owner or operator of a small construction project must complete this form and develop a Storm Water Pollution Prevention Plan (SWPPP) as required by ACT5 of Mississippi's Small Construction General Permit. This SCNOI and SWPPP shall be submitted to the Mississippi Department of Environmental Quality (MDEQ) only upon request from MDEQ; however, the SCNOI and SWPPP must be maintained at the permitted site or locally available in case inspector review is necessary. Attachments with this SCNOI must include: a USGS quad map or copy showing site location (only if required to be submitted to MDEQ) and a Storm Water Pollution Prevention Plan (SWPPP). All questions must be answered - answer "NA" if the question is not applicable.

### PROJECT INFORMATION

**OWNER CONTACT PERSON:**

David O'Connor

**OWNER COMPANY NAME:**

ArvinMeritor, Inc.

**OWNER STREET (P.O. BOX):**

2135 West Maple Road

**OWNER CITY:**

Troy

STATE: Michigan

ZIP: 48064-7186

**OWNER PHONE # (INCLUDE AREA CODE):**

(248) 435-2706

**OPERATOR (if different from owner) CONTACT PERSON:**

Ihsan Al-Fayyomi

**OPERATOR COMPANY:**

Brown and Caldwell Constructors

**OPERATOR STREET (P.O. BOX):**

4700 Lakehurst Court, Suite 100

**OPERATOR CITY:**

Columbus

STATE: Ohio

ZIP: 43016

**OPERATOR PHONE # (INCLUDE AREA CODE):**

(614) 410-6144

**PROJECT NAME:** Sludge Lagoon Closure

**DESCRIPTION OF CONSTRUCTION ACTIVITY:** Closure of a former surface impoundment

**ACREAGE DISTURBED** (to be covered by this permit, area must be less than five (5) acres): 2.2

**PHYSICAL SITE ADDRESS** (If not available, indicate the nearest named road. For linear projects, indicate the beginning of the project and identify all counties the project traverses.):

**STREET:** 635 Highway 332

**CITY:** Grenada

**COUNTY:** Grenada

**ZIP:** 38901

**NEAREST NAMED RECEIVING STREAM:** Riverdale Creek

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gathered and evaluated the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Signature

Vernon G. Baker, II

Printed Name

4-20-2010

Date Signed

Sr. Vice President/General Counsel

Title

\*This application shall be signed according to the Small Construction General Permit, ACT10, T-4.

If requested, please submit this form to:

Chief, Environmental Permits Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225

**APPENDIX B**  
**INSPECTION FORM**

# INSPECTION AND CERTIFICATION FORM SMALL CONSTRUCTION GENERAL PERMIT



COVERAGE NUMBER, if SCNOI was submitted to MDEQ (MSR15 \_\_\_\_\_)

Results of the inspections required by ACT6, S-4 of this permit shall be recorded on this report form and kept with the SWPPP in accordance with the inspection documentation provisions of ACT8, R-2 of the this permit. Inspections shall be performed at least weekly for a minimum of four inspections per month.

The coverage number must be listed at the top of all Inspection and Certification Forms, if the Small Construction Notice of Intent (SCNOI) was submitted to MDEQ (no coverage number is issued if SCNOI was not submitted to MDEQ).

## COVERAGE RECIPIENT INFORMATION

OPERATOR COMPANY NAME: Brown and Caldwell Constructors  
PROJECT NAME: Sludge Lagoon Closure STARTUP DATE: 3/29/2010  
PROJECT STREET ADDRESS: 635 Highway 332  
PROJECT CITY: Grenada PROJECT COUNTY: Grenada  
OPERATOR MAILING ADDRESS: 4700 Lakehurst Court, Suite 100  
MAILING CITY: Columbus STATE: Ohio ZIP: 43016  
CONTACT PERSON: Ihsan Al-Fayyomi CONTACT PHONE NUMBER: (614) 410-6144

INSPECTION DOCUMENTATION			
DATE (mo/day/yr)	TIME (hr:min AM/PM)	ANY DEFICIENCIES? (CHECK IF YES)	INSPECTOR(S)
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	
		<input type="checkbox"/>	

Deficiencies Noted During any Inspection (give date(s); attach additional sheets if necessary):

Corrective Action Taken or Planned (give date(s); attach additional sheets if necessary):

Based upon this inspection which I or personnel under my direct supervision conducted, I certify that all erosion and sediment controls have been implemented and maintained, except for those deficiencies noted above, in accordance with the Storm Water Pollution Prevention Plan and sound engineering practices as required by the above referenced permit. I further certify that the SCNOI and SWPPP information is up to date.

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fines and imprisonment for knowing violations.

Authorized Signature \_\_\_\_\_

Date \_\_\_\_\_

Printed Name \_\_\_\_\_

Title \_\_\_\_\_

If requested, please submit this form to:

Chief, Environmental Compliance and Enforcement Division  
MDEQ, Office of Pollution Control  
P.O. Box 2261  
Jackson, Mississippi 39225



## Appendix G: Erosion/Sediment Control Material Information

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Manufacturers Advanced Composite Materials, Automotive and Apparel  
Specialty Fabrics, Bias Binding, Electrical Insulation,  
Narrow Fabrics, P.V.C. Film, Construction, Survey & Safety Accessories

## MUTUAL INDUSTRIES INC.

707 W. GRANGE STREET, PHILADELPHIA, PA 19120  
800 523-0888 215 927-6000 FAX: 215 927-3388  
CUSTOMER SERVICE LINE

### CONTRACTOR GRADE SILT FENCE SPECIFICATIONS

WIDTH: 36"X100'  
SIZE OF STAKES: 1-1/2" X 1-1/2"X 48" (NOMINAL) OAK STAKES  
CENTERS: 10' CENTERS (11 POSTS)  
FABRIC: MISF 150

Grab Tensile Strength MD ASTM D4632 78/25 lb  
" " XD 73/23 lbs

Grab Tensile Elongation MD ASTM D4632 28%  
" " XD 40%

Mullen Burst Strength ASTM D3786 347lbs

Puncture Strength ASTM D4833 52lbs

Trapezoidal Tear MD ASTM D4533 42lbs  
" " XD 42lbs

Apparent Opening ASTM D4751 .37 U.S. Std

Flow Rate/permeability ASTM D4491 1.9GPM/SQ.YD

UV Resistance after 500hrs ASTM D4355 80%Strength Retained

#### SUBMITTAL REVIEW

REVIEW IS FOR GENERAL COMPLIANCE  
WITH CONTRACT DOCUMENTS  
NO RESPONSIBILITY IS ASSUMED FOR  
CORRECTNESS OF DIMENSIONS OR DETAILS.  
THE CONTRACTOR SHALL ASSUME FULL  
RESPONSIBILITY FOR DEVIATIONS FROM  
CONTRACT REQUIREMENTS NOT SPECIFICALLY  
INDICATED ON THIS SUBMITTAL.

☒ NO EXCEPTIONS  
TAKEN

☐ MAKE CORRECTIONS  
NOTED

☐ AMEND AND  
RESUBMIT

☐ REJECTED-SEE  
REMARKS

Date 4/23/10 By RAC

BROWN AND CALDWELL CONSTRUCTORS

## SUNCOAST FABRICS

### Product Description

Product Code 6774

632-10-12.5 Ga. Field Fence

Number of Horizontal Wires 6

Vertical Wire Spacing 12 Inches

Height 32 Inches

Gauge 10 Ga. Top & Bottom  
Filler Wires Vertical/Horizontal 12.5 GA

Hinge Joint Construction 2.5 Wrap Min.

Zinc Coating Commercial Class

Roll Length 330 feet

Weight per Roll 94 lbs

### SUBMITTAL REVIEW

REVIEW IS FOR GENERAL COMPLIANCE  
WITH CONTRACT DOCUMENTS  
NO RESPONSIBILITY IS ASSUMED FOR  
CORRECTNESS OF DIMENSIONS OR DETAILS.  
THE CONTRACTOR SHALL ASSUME FULL  
RESPONSIBILITY FOR DEVIATIONS FROM  
CONTRACT REQUIREMENTS NOT SPECIFICALLY  
INDICATED ON THIS SUBMITTAL.

☒ NO EXCEPTIONS  
TAKEN

☐ MAKE CORRECTIONS  
NOTED

☐ AMEND AND  
RESUBMIT

☐ REJECTED-SEE  
REMARKS

Date 4/23/10 By RAT

BROWN AND CALDWELL CONSTRUCTORS



## Appendix H: Air Monitoring Forms

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*YUQO*

Date: 05-21-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 100.0 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
1000	Cell 1 Solidification	0.0		1545	Cell 1 Solidification	0.0	
1015	Cell 1 Solidification	0.0		1600	Cell 1 Solidification	0.0	
1030	Cell 1 Solidification	0.0		1615	Cell 1 Solidification	0.0	
1045	Cell 1 Solidification	0.0		1630	Cell 1 Solidification	0.0	
1100	Cell 1 Solidification	0.0		1645	Cell 1 Solidification	0.0	
1115	Cell 1 Solidification	0.0		1655	Solidification stops for the day	0.0	
1121	Solidification shutdown	0.0					
1310	Cell 1 Solidification	0.0					
1315	Cell 1 Solidification	0.0					
1330	Cell 1 Solidification	0.0					
1345	Cell 1 Solidification	0.0					
1400	Cell 1 Solidification	0.0					
1415	Cell 1 Solidification	0.0					
1430	Cell 1 Solidification	0.0					
1445	Cell 1 Solidification	0.0					
1500	Cell 1 Solidification	0.0					
1515	Cell 1 Solidification	0.0					
1530	Cell 1 Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*Richard A. Isaac*

Date: 05-22-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 100.0 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
845	Cell 1 Solidification	0.0		1245	Cell 1 Solidification	0.1	
900	Cell 1 Solidification	0.0		1300	Cell 1 Solidification	0.1	
901	Cell 1 Solidification	0.1		1315	Cell 1 Solidification	0.1	
915	Cell 1 Solidification	0.0		1330	Cell 1 Solidification	0.1	
930	Cell 1 Solidification	0.0		1345	Solidification stops for the day	0.1	
945	Cell 1 Solidification	0.0					
947	Cell 1 Solidification	0.1					
1000	Cell 1 Solidification	0.1					
1015	Cell 1 Solidification	0.1					
1030	Cell 1 Solidification	0.1					
1045	Cell 1 Solidification	0.1					
1100	Cell 1 Solidification	0.1					
1115	Cell 1 Solidification	0.1					
1130	Cell 1 Solidification	0.1					
1145	Cell 1 Solidification	0.1					
1200	Cell 1 Solidification	0.1					
1215	Cell 1 Solidification	0.1					
1230	Cell 1 Solidification	0.1					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*R. Isaac*

Date: 05-25-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 100.0 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
706	Cell 1 Solidification	0.0		1145	Cell 1 Solidification	0.0	
715	Cell 1 Solidification	0.0		1155	Solidification suspension - lunch	0.0	
730	Cell 1 Solidification	0.0		1235	Cell 1 Solidification	0.0	
745	Cell 1 Solidification	0.0		1245	Cell 1 Solidification; RAI recalibrates PID	0.2 - 0.3	
800	Cell 1 Solidification	0.0		1306	Cell 1 Solidification	0.0	
815	Cell 1 Solidification	0.0		1315	Cell 1 Solidification	0.0	
817	Cell 1 Solidification	0.1 - 0.2		1330	Cell 1 Solidification	0.0	
830	Cell 1 Solidification	0.0		1345	Cell 1 Solidification	0.0	
845	Cell 1 Solidification	0.0		1400	Cell 1 Solidification	0.0	
900	Cell 1 Solidification	0.0		1415	Cell 1 Solidification	0.0	
915	Cell 1 Solidification	0.0		1430	Cell 1 Solidification	0.0	
930	Solidification suspension - weather	0.0		1445	Cell 1 Solidification	0.0	
1045	Cell 1 Solidification	0.0		1500	Cell 1 Solidification	0.0	
1100	Cell 1 Solidification	0.0		1515	Cell 1 Solidification	0.0	
1115	Cell 1 Solidification	0.0		1530	Cell 1 Solidification	0.0	
1130	Cell 1 Solidification	0.0		1545	Cell 1 Solidification	0.0	

Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*RAI*

Date: 05-25-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 100.0 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
1600	Cell 1 Solidification	0.0					
1615	Cell 1 Solidification	0.0					
1630	Cell 1 Solidification	0.0					
1645	Cell 1 Solidification	0.0					
1700	Cell 1 Solidification	0.0					
1715	Cell 1 Solidification	0.0					
1730	Cell 1 Solidification	0.0					
1745	Cell 1 Solidification	0.0					
1800	Cell 1 Solidification	0.0					
1815	Cell 1 Solidification	0.0					
1823	Solidification stops for the day	0.0					

Instructions: Complete this form immediately prior to project start.

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*Richard A. Isaac*

Date: 05-27-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 99.9 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
1115	Cell 2 Solidification	0.0		1645	Solidification stops for the day	0.1	
1130	Cell 2 Solidification	0.0					
1145	Cell 2 Solidification	0.0					
1200	Cell 2 Solidification	0.0					
1215	Cell 2 Solidification	0.1					
1219	Cell 2 Solidification	0.0					
1230	Cell 2 Solidification	0.1					
1238	Solidification suspended - lunch	0.1					
1415	Cell 2 Solidification	0.1					
1430	Cell 2 Solidification	0.1					
1445	Cell 2 Solidification	0.1					
1500	Cell 2 Solidification	0.1					
1515	Cell 2 Solidification	0.1					
1530	Cell 2 Solidification	0.1					
1545	Cell 2 Solidification	0.1					
1600	Cell 2 Solidification	0.1					
1615	Cell 2 Solidification	0.1					
1630	Cell 2 Solidification	0.1					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac

Date: 06-02-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 99.8 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)
900	Cell 2/3 Sludge Solidification	0.0		1430	Cell 2/3 Sludge Solidification	0.1	
915	Cell 2/3 Sludge Solidification	0.1		1445	Cell 2/3 Sludge Solidification	0.1	
925	Cell 2/3 Sludge Solidification	0.0		1530	Cell 2/3 Sludge Solidification	0.1	
930	Cell 2/3 Sludge Solidification	0.1		1545	Cell 2/3 Sludge Solidification	0.1	
945	Cell 2/3 Sludge Solidification	0.0		1600	Cell 2/3 Sludge Solidification	0.1	
1000	Cell 2/3 Sludge Solidification	0.1		1615	Cell 2/3 Sludge Solidification	0.1	
1015	Cell 2/3 Sludge Solidification	0.1		1630	Cell 2/3 Sludge Solidification	0.1	
1030	Cell 2/3 Sludge Solidification	0.1		1645	Cell 2/3 Sludge Solidification	0.1	
1045	Cell 2/3 Sludge Solidification	0.1		1700	Cell 2/3 Sludge Solidification	0.1	
1100	Cell 2/3 Sludge Solidification	0.1		1713	Solidification suspended – rain/day	0.1	
1115	Cell 2/3 Sludge Solidification	0.1					
1130	Cell 2/3 Sludge Solidification	0.1					
1145	Cell 2/3 Sludge Solidification	0.1					
1150	Solidification suspended for lunch	0.1					
1320	Cell 2/3 Sludge Solidification	0.0					
1330	Cell 2/3 Sludge Solidification	0.1					
1345	Cell 2/3 Sludge Solidification	0.1					
1400	Cell 2/3 Sludge Solidification	0.1					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*RUAQ*

Date: 06-03-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 99.9 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
918	Cell 3 Sludge Solidification	0.0		1430	Cell 3 Sludge Solidification	0.1	
930	Cell 3 Sludge Solidification	0.2 - 0.3		1445	Cell 3 Sludge Solidification	0.1	
945	Cell 3 Sludge Solidification	0.0		1500	Cell 3 Sludge Solidification	0.1	
1000	Cell 3 Sludge Solidification	0.1		1515	Cell 3 Sludge Solidification	0.1	
1015	Cell 3 Sludge Solidification	0.0		1530	Cell 3 Sludge Solidification	0.1	
1030	Cell 3 Sludge Solidification	0.0		1715	Solidification suspended for the day	0.1	
1045	Cell 3 Sludge Solidification	0.0					
1100	Cell 3 Sludge Solidification	0.0					
1115	Cell 3 Sludge Solidification	0.0					
1130	Cell 3 Sludge Solidification	0.0					
1145	Cell 3 Sludge Solidification	0.0					
1155	Solidification suspended for lunch	0.0					
1309	Cell 3 Sludge Solidification	0.1					
1315	Cell 3 Sludge Solidification	0.1 - 0.3					
1330	Cell 3 Sludge Solidification	0.0					
1345	Cell 3 Sludge Solidification	0.0					
1400	Cell 3 Sludge Solidification	0.0					
1415	Cell 3 Sludge Solidification	0.1					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac <i>RUAQ</i>				Date: 06-04-10			
Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 99.9 span cal				End-of-Use Calibration Reading: NA			
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
Mini-RAM Dust Monitor							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
Monitoring Data							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
800	Cell 3 Sludge Solidification	0.0		1445	Cell 3/4 Sludge Solidification	0.1	
815	Cell 3 Sludge Solidification	0.0		1500	Cell 3/4 Sludge Solidification	0.1	
830	Cell 3 Sludge Solidification	0.0		1515	Cell 3/4 Sludge Solidification	0.1	
845	Cell 3 Sludge Solidification	0.0		1530	Cell 3/4 Sludge Solidification	0.1	
900	Cell 3 Sludge Solidification	0.0		1545	Cell 3/4 Sludge Solidification	0.1	
915	Cell 3 Sludge Solidification	0.0		1600	Cell 3/4 Sludge Solidification	0.1	
930	Cell 3 Sludge Solidification	0.0		1615	Cell 3/4 Sludge Solidification	0.1	
945	Cell 3 Sludge Solidification	0.0		1630	Cell 3/4 Sludge Solidification	0.1	
1000	Cell 3 Sludge Solidification	0.0		1645	Cell 3/4 Sludge Solidification	0.1	
1015	Cell 3 Sludge Solidification	0.0		1700	Cell 3/4 Sludge Solidification	0.0	
1030	Solidification suspended	0.0		1712	Solidification suspended for the day	0.0	
1300	Sludge solidification resumes	0.0					
1315	Cell 3/4 Sludge Solidification	0.0					
1330	Cell 3/4 Sludge Solidification	0.0					
1345	Cell 3/4 Sludge Solidification	0.0					
1400	Cell 3/4 Sludge Solidification	0.0					
1430	Cell 3/4 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*R. Isaac*

Date: 06-05-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 99.9 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
723	Cell 7 Sludge Solidification	0.0		1145	Cell 7 Sludge Solidification	0.0	
730	Cell 7 Sludge Solidification	0.0		1200	Cell 7 Sludge Solidification	0.0	
745	Cell 7 Sludge Solidification	0.0		1215	Cell 7 Sludge Solidification	0.0	
800	Cell 7 Sludge Solidification	0.0		1230	Cell 7 Sludge Solidification	0.0	
815	Cell 7 Sludge Solidification	0.0		1245	Cell 7 Sludge Solidification	0.0	
830	Cell 7 Sludge Solidification	0.0		1300	Cell 7 Sludge Solidification	0.0	
845	Cell 7 Sludge Solidification	0.0		1315	Cell 7 Sludge Solidification	0.0	
900	Cell 7 Sludge Solidification	0.0		1330	Cell 7 Sludge Solidification	0.0	
915	Cell 7 Sludge Solidification	0.0		1345	Cell 7 Sludge Solidification	0.0	
930	Cell 7 Sludge Solidification	0.0		1400	Solidification suspended for the day	0.0	
945	Cell 7 Sludge Solidification	0.0					
1000	Cell 7 Sludge Solidification	0.0					
1015	Cell 7 Sludge Solidification	0.0					
1030	Cell 7 Sludge Solidification	0.0					
1045	Cell 7 Sludge Solidification	0.0					
1100	Cell 7 Sludge Solidification	0.0					
1115	Cell 7 Sludge Solidification	0.0					
1130	Cell 7 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*rua*

Date: 06-07-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 99.8 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
736	Cell 4 Sludge Solidification	0.0		1200	Cell 4 Sludge Solidification	0.0	
745	Cell 4 Sludge Solidification	0.0		1205	Solidification suspended for lunch	0.0	
800	Cell 4 Sludge Solidification	0.0		1322	Sludge solidification resumes	0.0	
815	Cell 4 Sludge Solidification	0.0		1330	Cell 4 Sludge Solidification	0.0	
830	Cell 4 Sludge Solidification	0.0		1345	Cell 4 Sludge Solidification	0.1	
845	Cell 4 Sludge Solidification	0.0		1400	Cell 7 Sludge Solidification	0.1	
900	Cell 4 Sludge Solidification	0.0		1415	Cell 7 Sludge Solidification	0.0 - 0.1	
915	Cell 4 Sludge Solidification	0.0		1430	Cell 7 Sludge Solidification	0.1	
930	Cell 4 Sludge Solidification	0.0		1445	Cell 7 Sludge Solidification	0.1	
945	Cell 4 Sludge Solidification	0.0		1500	Cell 7 Sludge Solidification	0.1	
1000	Cell 4 Sludge Solidification	0.0		1515	Cell 7 Sludge Solidification	0.1	
1015	Cell 4 Sludge Solidification	0.0 - 0.1		1530	Cell 7 Sludge Solidification	0.1	
1030	Cell 4 Sludge Solidification	0.0		1545	Cell 7 Sludge Solidification	0.1	
1045	Cell 4 Sludge Solidification	0.0		1600	Cell 7 Sludge Solidification	0.1	
1100	Cell 4 Sludge Solidification	0.0		1615	Cell 7 Sludge Solidification	0.1	
1115	Cell 4 Sludge Solidification	0.0		1626	Solidification suspended for the day	0.0	
1130	Cell 4 Sludge Solidification	0.0					
1145	Cell 4 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*R. Isaac*

Date: 06-08-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 99.8 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
747	Cell 5 Sludge Solidification	0.0		1517	Sludge solidification resumes	0.0	
800	Cell 5 Sludge Solidification	0.0		1530	Cell 8 Sludge Solidification	0.0	
815	Cell 5 Sludge Solidification	0.0		1545	Cell 8 Sludge Solidification	0.1	
830	Cell 5 Sludge Solidification	0.0		1600	Cell 8 Sludge Solidification	0.1	
845	Cell 5 Sludge Solidification	0.0		1615	Cell 8 Sludge Solidification	0.1	
900	Cell 5 Sludge Solidification	0.0		1630	Cell 8 Sludge Solidification	0.1	
915	Cell 5 Sludge Solidification	0.0		1645	Cell 8 Sludge Solidification	0.1	
930	Cell 5 Sludge Solidification	0.0		1700	Cell 8 Sludge Solidification	0.1	
945	Cell 5 Sludge Solidification	0.0		1715	Cell 8 Sludge Solidification	0.1	
1000	Cell 5 Sludge Solidification	0.0		1730	Cell 8 Sludge Solidification	0.1	
1015	Cell 5 Sludge Solidification	0.0 - 0.1		1745	Cell 8 Sludge Solidification	0.1	
1030	Cell 5 Sludge Solidification	0.0		1800	Cell 8 Sludge Solidification	0.1	
1045	Cell 5 Sludge Solidification	0.0		1810	Solidification suspended for the day	0.1	
1100	Cell 5 Sludge Solidification	0.0					
1115	Cell 5 Sludge Solidification	0.0					
1130	Cell 5 Sludge Solidification	0.1					
1145	Cell 5 Sludge Solidification	0.1					
1156	Solidification suspended for lunch	0.1					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac <i>ruao</i>				Date: 06-09-10			
Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 100.0 span cal				End-of-Use Calibration Reading: NA			
Re-calibration Reading: 0.0 ppm zero cal; 100.3 span cal; 13:14							
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
Mini-RAM Dust Monitor							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
Monitoring Data							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
802	Cell 5 Sludge Solidification	0.1		1325	Cell 5 Sludge Solidification	0.0	
830	Cell 5 Sludge Solidification	0.1		1330	Cell 5 Sludge Solidification	0.0	
845	Cell 5 Sludge Solidification	0.1		1345	Cell 5 Sludge Solidification	0.0	
900	Cell 5 Sludge Solidification	0.1		1400	Cell 5 Sludge Solidification	0.0	
915	Cell 5 Sludge Solidification	0.1		1415	Cell 5 Sludge Solidification	0.0	
930	Cell 5 Sludge Solidification	0.1		1430	Cell 5 Sludge Solidification	0.0	
945	Cell 5 Sludge Solidification	0.1		1445	Solidification suspended – Cell 5	0.0	
1000	Cell 5 Sludge Solidification	0.1		1626	Sludge solidification resumes	0.0	
1015	Cell 5 Sludge Solidification	0.1		1630	Cell 8 Sludge Solidification	0.0	
1030	Cell 5 Sludge Solidification	0.1		1645	Cell 8 Sludge Solidification	0.0	
1045	Cell 5 Sludge Solidification	0.1		1650	Solidification suspended for the day	0.0	
1100	Cell 5 Sludge Solidification	0.1					
1115	Cell 5 Sludge Solidification	0.1					
1130	Cell 5 Sludge Solidification	0.1					
1137	Cell 5 Sludge Solidification	0.1 – 0.2					
1145	Cell 5 Sludge Solidification	0.1					
1200	Solidification suspended for lunch	0.1					
1300	Sludge solidification resumes	---					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac <i>RAI</i>				Date: 06-10-10			
Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 99.9 span cal				End-of-Use Calibration Reading: NA			
Re-calibration Reading: 0.0 ppm zero cal; 99.9 span cal; 1305							
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
Mini-RAM Dust Monitor							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
Monitoring Data							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)
817	Cell 6 Sludge Solidification	0.1		1330	Cell 6 Sludge Solidification	0.0	
830	Cell 6 Sludge Solidification	0.2		1345	Cell 6 Sludge Solidification	0.0	
845	Cell 6 Sludge Solidification	0.2		1400	Cell 6 Sludge Solidification	0.0	
900	Cell 6 Sludge Solidification	0.2		1415	Cell 6 Sludge Solidification	0.0	
915	Cell 6 Sludge Solidification	0.2		1430	Cell 6 Sludge Solidification	0.0	
930	Cell 6 Sludge Solidification	0.2 – 0.3		1445	Cell 6 Sludge Solidification	0.0	
945	Cell 6 Sludge Solidification	0.2 – 0.3		1500	Cell 6 Sludge Solidification	0.0	
1000	Cell 6 Sludge Solidification	0.2		1515	Cell 6 Sludge Solidification	0.0	
1015	Cell 6 Sludge Solidification	0.2		1523	Solidification suspended – Cell 6	0.0	
1030	Cell 6 Sludge Solidification	0.1		1632	Sludge solidification resumes	0.0	
1045	Cell 6 Sludge Solidification	0.1		1645	Cell 8 Sludge Solidification	0.0	
1100	Cell 6 Sludge Solidification	0.2		1700	Cell 8 Sludge Solidification	0.0	
1115	Cell 6 Sludge Solidification	0.1		1715	Cell 8 Sludge Solidification	0.0	
1130	Cell 6 Sludge Solidification	0.3		1730	Cell 8 Sludge Solidification	0.0	
1145	Cell 6 Sludge Solidification	0.2		1745	Cell 8 Sludge Solidification	0.0	
1200	Solidification suspended for lunch	0.2		1800	Cell 8 Sludge Solidification	0.0	
1311	Sludge solidification resumes	0.0		1810	Solidification suspended for the day	0.0	
1315	Cell 6 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac 						Date: 06-11-10	
<b>Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)</b>							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 100.0 span cal Re-calibration Reading: 0.0 ppm zero cal; 100.0 span cal; Re-calibration Reading: 0.0 ppm zero cal; 100.0 span cal; Re-calibration Reading: 0.0 ppm zero cal; 98.9 span cal; 1440				End-of-Use Calibration Reading: NA			
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
<b>Mini-RAM Dust Monitor</b>							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
<b>Monitoring Data</b>							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
754	Cell 6 Sludge Solidification	1.8 – 2.1		1215	Cell 6 Sludge Solidification	0.0	
	Sludge solidification suspended			1218	Solidification suspended for lunch	0.0	
815	Draeger-tubes	No reading		1506	Sludge solidification resumes	0.1	
835	Cell 6 sludge solidification resumes	1.8 – 2.2		1515	Cell 8 Sludge Solidification	0.0	
845	Draeger-tubes	No reading		1530	Cell 8 Sludge Solidification	0.0	
900	Cell 6 Sludge Solidification	0.0		1545	Cell 8 Sludge Solidification	0.0	
915	Cell 6 Sludge Solidification	0.0		1600	Cell 8 Sludge Solidification	0.0	
930	Cell 6 Sludge Solidification	0.0		1615	Cell 8 Sludge Solidification	0.0	
945	Cell 6 Sludge Solidification	0.0		1630	Cell 8 Sludge Solidification	0.0	
1000	Cell 6 Sludge Solidification	0.0		1645	Cell 8 Sludge Solidification	0.0	
1030	Cell 6 Sludge Solidification	0.0		1650	Solidification suspended for the day	0.0	
1045	Cell 6 Sludge Solidification	0.0					
1100	Cell 6 Sludge Solidification	0.0					
1115	Cell 6 Sludge Solidification	0.0					
1130	Cell 6 Sludge Solidification	0.0					
1145	Cell 6 Sludge Solidification	0.0					
1200	Cell 6 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac 						Date: 06-12-10	
<b>Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)</b>							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 99.5 span cal				End-of-Use Calibration Reading: NA			
Re-calibration Reading: 0.0 ppm zero cal; 99.9 span cal; 830							
Re-calibration Reading: 0.0 ppm zero cal; 99.9 span cal; 930							
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
<b>Mini-RAM Dust Monitor</b>							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
<b>Monitoring Data</b>							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)
749	Cell 8 Sludge Solidification	0.0		1200	Cell 8 Sludge Solidification	0.1	
800	Cell 8 Sludge Solidification	0.0		1210	Solidification suspended for lunch	0.1	
815	Cell 8 Sludge Solidification	0.0		1350	Sludge solidification resumes	0.1	
830	Cell 8 Sludge Solidification	0.0		1400	Cell 12 Sludge Solidification	0.1	
840	Re-calibrate PID	0.0		1415	Cell 12 Sludge Solidification	0.0	
845	Cell 8 Sludge Solidification	0.0		1430	Cell 12 Sludge Solidification	0.1	
900	Cell 8 Sludge Solidification	0.0		1445	Cell 12 Sludge Solidification	0.1	
915	Cell 8 Sludge Solidification	0.0		1450	Solidification suspended for the day	0.1	
930	Re-calibrate PID	0.0					
945	Cell 8 Sludge Solidification	0.0					
1000	Cell 8 Sludge Solidification	0.0					
1015	Cell 8 Sludge Solidification	0.0					
1030	Cell 8 Sludge Solidification	0.0					
1045	Cell 8 Sludge Solidification	0.0					
1100	Cell 8 Sludge Solidification	0.0					
1115	Cell 8 Sludge Solidification	0.0					
1130	Cell 8 Sludge Solidification	0.0					
1145	Cell 8 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac <i>ruao</i>				Date: 06-14-10			
Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 100.0 span cal				End-of-Use Calibration Reading: NA			
Re-calibration Reading: 0.0 ppm zero cal; 100.0 span cal; 805							
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
Mini-RAM Dust Monitor							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
Monitoring Data							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
752	Cell 12 Sludge Solidification	---		1209	Solidification suspended for lunch	0.0	
805	Re-calibrate PID	---		1258	Sludge solidification resumes	0.0	
815	Cell 12 Sludge Solidification	0.1		1300	Cell 12 Sludge Solidification	0.0	
830	Cell 12 Sludge Solidification	0.0		1315	Cell 12 Sludge Solidification	0.0	
845	Cell 12 Sludge Solidification	0.0		1330	Cell 12 Sludge Solidification	0.0	
900	Cell 12 Sludge Solidification	0.0		1430	Cell 12 Sludge Solidification	0.0	
915	Cell 12 Sludge Solidification	0.0		1445	Solidification suspended in Cell 12	0.0	
930	Cell 12 Sludge Solidification	0.0		1553	Sludge solidification resumes	0.0	
945	Cell 12 Sludge Solidification	0.0		1600	Cell 11 Sludge Solidification	0.0	
1000	Cell 12 Sludge Solidification	0.0		1615	Cell 11 Sludge Solidification	0.0	
1015	Cell 12 Sludge Solidification	0.0		1630	Cell 11 Sludge Solidification	0.0	
1030	Cell 12 Sludge Solidification	0.0		1645	Cell 11 Sludge Solidification	0.0	
1045	Cell 12 Sludge Solidification	0.0		1700	Cell 11 Sludge Solidification	0.0	
1100	Cell 12 Sludge Solidification	0.0		1715	Cell 11 Sludge Solidification	0.0	
1115	Cell 12 Sludge Solidification	0.0		1724	Solidification suspended for the day	0.0	
1130	Cell 12 Sludge Solidification	0.0					
1145	Cell 12 Sludge Solidification	0.0					
1200	Cell 12 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac <i>ruao</i>				Date: 06-15-10			
Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 100.5 span cal				End-of-Use Calibration Reading: NA			
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
Mini-RAM Dust Monitor							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
Monitoring Data							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m³)
730	Cell 11 Sludge Solidification	0.0		1200	Solidification suspended for lunch	0.0	
745	Cell 11 Sludge Solidification	0.1		1406	Sludge solidification resumes	0.0	
800	Cell 11 Sludge Solidification	0.0		1415	Cell 12 Sludge Solidification	0.0	
815	Cell 11 Sludge Solidification	0.0		1430	Cell 12 Sludge Solidification	0.0	
830	Cell 11 Sludge Solidification	0.0		1445	Cell 12 Sludge Solidification	0.0 - 0.1	
845	Cell 11 Sludge Solidification	0.0		1500	Cell 12 Sludge Solidification	0.0	
900	Cell 11 Sludge Solidification	0.0		1515	Cell 12 Sludge Solidification	0.0	
915	Cell 11 Sludge Solidification	0.0		1530	Cell 12 Sludge Solidification	0.0	
930	Cell 11 Sludge Solidification	0.0		1545	Cell 12 Sludge Solidification	0.0	
945	Cell 11 Sludge Solidification	0.0		1600	Cell 12 Sludge Solidification	0.0	
1000	Cell 11 Sludge Solidification	0.0		1615	Cell 12 Sludge Solidification	0.0	
1015	Cell 11 Sludge Solidification	0.0		1645	Cell 12 Sludge Solidification	0.0	
1030	Cell 11 Sludge Solidification	0.0		1700	Cell 12 Sludge Solidification	0.0	
1045	Cell 11 Sludge Solidification	0.0		1703	Solidification suspended for the day	0.0	
1100	Cell 11 Sludge Solidification	0.0					
1115	Cell 11 Sludge Solidification	0.0					
1130	Cell 11 Sludge Solidification	0.0					
1145	Cell 11 Sludge Solidification	0.0					

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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*Richard A. Isaac*

Date: 06-16-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 100.4 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
740	Cell 11 Sludge Solidification	0.0		1300	Sludge solidification resumes	0.0	
745	Cell 11 Sludge Solidification	0.0		1315	Cell 11 Sludge Solidification	0.1	
800	Cell 11 Sludge Solidification	0.0		1330	Cell 11 Sludge Solidification	0.0	
815	Cell 11 Sludge Solidification	0.0		1345	Cell 11 Sludge Solidification	0.0	
830	Cell 11 Sludge Solidification	0.0		1400	Solidification suspended	0.0	
845	Cell 11 Sludge Solidification	0.0		1435	Sludge solidification resumes	0.0	
900	Cell 11 Sludge Solidification	0.0		1445	Cell 8/9 Sludge Solidification	0.0	
915	Cell 11 Sludge Solidification	0.0		1500	Cell 8/9 Sludge Solidification	0.0	
930	Cell 11 Sludge Solidification	0.0		1515	Cell 8/9 Sludge Solidification	0.0	
945	Cell 11 Sludge Solidification	0.0		1530	Cell 8/9 Sludge Solidification	0.0	
1000	Cell 11 Sludge Solidification	0.0		1545	Cell 8/9 Sludge Solidification	0.0	
1015	Cell 11 Sludge Solidification	0.0		1600	Cell 8/9 Sludge Solidification	0.0	
1030	Cell 11 Sludge Solidification	0.0		1615	Cell 8/9 Sludge Solidification	0.0	
1045	Cell 11 Sludge Solidification	0.0		1630	Cell 8/9 Sludge Solidification	0.0	
1052	Solidification suspended	0.0		1645	Cell 8/9 Sludge Solidification	0.0	
1130	Sludge solidification resumes	0.0		1650	Solidification suspended for the day	0.0	
1145	Cell 11 Sludge Solidification	0.0					
1154	Solidification suspended for lunch	0.0					

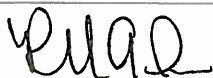
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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure	Project No: 138466
---	--------------------

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac

Date: 06-17-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID	Manufacturer: RAE Systems	Model: MiniRAE 3000	Serial #: 592-000858
--	---------------------------	---------------------	----------------------

Initial Calibration Reading: 0.0 ppm zero cal; 100.3 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:	Model:	Serial #:
---------------	--------	-----------

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
720	Cell 9 Sludge Solidification	0.0		1238	Sludge solidification resumes	0.1	
730	Cell 9 Sludge Solidification	0.0		1245	Cell 11/12 Sludge Solidification	0.1	
745	Cell 9 Sludge Solidification	0.0		1300	Cell 11/12 Sludge Solidification	0.1	
800	Cell 9 Sludge Solidification	0.0		1315	Cell 11/12 Sludge Solidification	0.1	
815	Cell 9 Sludge Solidification	0.0		1330	Cell 11/12 Sludge Solidification	0.1	
830	Cell 9 Sludge Solidification	0.0		1345	Cell 11/12 Sludge Solidification	0.1	
845	Cell 9 Sludge Solidification	0.0		1400	Cell 11/12 Sludge Solidification	0.1	
900	Cell 9 Sludge Solidification	0.0		1415	Cell 11/12 Sludge Solidification	0.1	
915	Cell 9 Sludge Solidification	0.0		1430	Cell 11/12 Sludge Solidification	0.1	
930	Cell 9 Sludge Solidification	0.0		1445	Cell 10/11 Sludge Solidification	0.1	
945	Cell 9 Sludge Solidification	0.0		1500	Cell 10/11 Sludge Solidification	0.1	
1000	Cell 9 Sludge Solidification	0.1		1515	Cell 10/11 Sludge Solidification	0.1	
1015	Cell 9/10 Sludge Solidification	0.0		1530	Cell 10/11 Sludge Solidification	0.1	
1030	Cell 9/10 Sludge Solidification	0.1		1545	Cell 10/11 Sludge Solidification	0.1	
1045	Cell 9/10 Sludge Solidification	0.1		1600	Cell 10/11 Sludge Solidification	0.1	
1100	Cell 9/10 Sludge Solidification	0.1		1630	Cell 10/11 Sludge Solidification	0.1	
1115	Cell 9/10 Sludge Solidification	0.1		1645	Cell 10/11 Sludge Solidification	0.1	
1124	Solidification suspended for lunch	0.1		1706	Solidification suspended for the day	0.1	

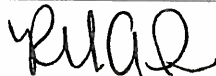
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Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac

Date: 06-18-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 100.4 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
717	Cell 10 Sludge Solidification	0.0		1145	Cell 10 Sludge Solidification	0.1	
730	Cell 10 Sludge Solidification	0.0		1200	Cell 10 Sludge Solidification	0.1	
745	Cell 10 Sludge Solidification	0.0		1300	Cell 10 Sludge Solidification	0.1	
800	Cell 10 Sludge Solidification	0.0		1315	Cell 10 Sludge Solidification	0.1	
815	Cell 10 Sludge Solidification	0.0		1330	Cell 10 Sludge Solidification	0.1	
830	Cell 10 Sludge Solidification	0.0		1345	Cell 10 Sludge Solidification	0.1	
845	Cell 10 Sludge Solidification	0.0 - 0.1		1400	Cell 10 Sludge Solidification	0.1	
900	Cell 10 Sludge Solidification	0.0 - 0.1		1415	Cell 10 Sludge Solidification	0.1	
915	Cell 10 Sludge Solidification	0.0		1430	Cell 10 Sludge Solidification	0.1	
930	Cell 10 Sludge Solidification	0.0		1445	Cell 10 Sludge Solidification	0.1	
945	Cell 10 Sludge Solidification	0.0		1500	Cell 10 Sludge Solidification	0.1	
1000	Cell 10 Sludge Solidification	0.0		1515	Cell 10 Sludge Solidification	0.1	
1015	Cell 10 Sludge Solidification	0.1		1530	Cell 10 Sludge Solidification	0.1	
1030	Cell 10 Sludge Solidification	0.1		1545	Cell 10 Sludge Solidification	0.1	
1045	Cell 10 Sludge Solidification	0.1		1600	Cell 10 Sludge Solidification	0.1	
1100	Cell 10 Sludge Solidification	0.1		1630	Cell 10 Sludge Solidification	0.1	
1115	Cell 10 Sludge Solidification	0.1		1645	Cell 10 Sludge Solidification	0.1	
1130	Cell 10 Sludge Solidification	0.1		1700	Cell 8/9 Sludge Solidification	0.1	

Instructions: Complete this form immediately prior to project

Name of Project/Site: Grenada Sludge Lagoon Closure				Project No: 138466			
Project/Site Location: 635 Highway 332, Grenada, MS. 39801							
Employee Performing Air Monitoring: (Print and Sign): Richard A. Isaac						Date: 06-18-10	
Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)							
<input checked="" type="checkbox"/> PID <input type="checkbox"/> FID		Manufacturer: RAE Systems		Model: MiniRAE 3000		Serial #: 592-000858	
Initial Calibration Reading: 0.0 ppm zero cal; 100.4 span cal				End-of-Use Calibration Reading: NA			
Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE							
Mini-RAM Dust Monitor							
Manufacturer:				Model:		Serial #:	
Zeroed in Z-Bag? <input type="checkbox"/> Yes <input type="checkbox"/> No							
Monitoring Data							
Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
1715	Cell 8/9 Sludge Solidification	0.1					
1730	Solidification suspended for the day	0.1					



Instructions: Complete this form immediately prior to project start.

Name of Project/Site: Grenada Sludge Lagoon Closure

Project No: 138466

Project/Site Location: 635 Highway 332, Grenada, MS. 39801

Employee Performing Air Monitoring:  
(Print and Sign): Richard A. Isaac*RUAR*

Date: 06-19-10

## Photo Ionization/Flame Ionization Detectors (PIDs/FIDs)

☒ PID ☐ FID

Manufacturer: RAE Systems

Model: MiniRAE 3000

Serial #: 592-000858

Initial Calibration Reading: 0.0 ppm zero cal; 100.4 span cal

End-of-Use Calibration Reading: NA

Calibration Standard/Concentration: 100 PPM ISO-BUTYLENE

## Mini-RAM Dust Monitor

Manufacturer:

Model:

Serial #:

Zeroed in Z-Bag? ☐ Yes ☐ No

## Monitoring Data

Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )	Time	Location and Activity	PID/FID (ppm)	Mini-RAM (mg/m <sup>3</sup> )
634	Cell 11 Sludge Solidification	0.0		1100	Cell 8/9 Sludge Solidification	0.1	
645	Cell 11 Sludge Solidification	0.0		1115	Cell 8/9 Sludge Solidification	0.1	
700	Cell 8/9 Sludge Solidification	0.0		1130	Cell 8/9 Sludge Solidification	0.1	
715	Cell 8/9 Sludge Solidification	0.0		1142	Solidification suspended for the day	0.1	
730	Cell 8/9 Sludge Solidification	0.1					
745	Cell 8/9 Sludge Solidification	0.1 - 0.2					
800	Cell 8/9 Sludge Solidification	0.1					
815	Cell 8/9 Sludge Solidification	0.1					
830	Cell 8/9 Sludge Solidification	0.1					
845	Cell 8/9 Sludge Solidification	0.1					
900	Cell 8/9 Sludge Solidification	0.1					
915	Cell 8/9 Sludge Solidification	0.1					
930	Cell 8/9 Sludge Solidification	0.1					
945	Cell 8/9 Sludge Solidification	0.1					
1000	Cell 8/9 Sludge Solidification	0.1					
1015	Cell 8/9 Sludge Solidification	0.1					
1030	Cell 8/9 Sludge Solidification	0.1					
1045	Cell 8/9 Sludge Solidification	0.1					

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## Appendix I: Reagent Supplier's Material Certification Reports

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Type I Portland Cement Material Certification Report

LKD Material Certification Report – Lhoist North America, Inc.

LKD Material Certification Report – Mintek Resources, Inc.

## Type I Portland Cement Material Certification Report



**Type I Portland Cement QC Laboratory Test Results**

<b>Type I Portland Cement</b>	<b>Equivalent Alkalies (%)</b>
<b>Project Criteria</b>	<b>&lt; 0.60%</b>
Holcom - Genevieve Plant	0.55
Holcim - Theodore Plant	0.42

NOTES:

% - percent



# Holcim

## Material Certification Report

Material: Portland Cement  
Type: I-II (C 150)

Test Period: 01-Mar-2010  
To: 31-Mar-2010

### Certification

Holcim cement meets the specifications of ASTM C 150 for Type I-II cement. This material complies with AASHTO M 85 specifications for Type II cement.

### General Information

Supplier: Holcim (US) Inc.  
Address: 2942 US Highway 61  
Bloomsdale, MO 63627  
Telephone: 636 524 8155  
Date Issued: 09-Apr-2010

Source Location: Ste Genevieve Plant  
2942 US Highway 61  
Bloomsdale, MO 63627  
Contact: Erin Watson

The following information is based on average test data during the test period. The data is typical of cement shipped by Holcim; individual shipments may vary.

### Tests Data on ASTM Standard Requirements

Chemical			Physical		
Item	Limit <sup>A</sup>	Result	Item	Limit <sup>A</sup>	Result
SiO <sub>2</sub> (%)	-	20.2	Air Content (%)	12 max	6
Al <sub>2</sub> O <sub>3</sub> (%)	6.0 max	4.4	Blaine Fineness (m <sup>2</sup> /kg)	260 min	381
Fe <sub>2</sub> O <sub>3</sub> (%)	6.0 max	3.1			
CaO (%)	-	63.6			
MgO (%)	6.0 max	3.0	Autoclave Expansion (%) (C 151)	0.80 max	0.05
SO <sub>3</sub> (%) <sup>C</sup>	3.0 max	3.2	Compressive Strength MPa (psi):		
Loss on Ignition (%)	3.0 max	2.3			
Insoluble Residue (%)	0.75 max	0.29	3 days	10.0 (1450) min	29.5 (4270)
CO <sub>2</sub> (%)	-	1.0	7 days	17.0 (2470) min	35.6 (5170)
Limestone (%)	5.0 max	2.6			
CaCO <sub>3</sub> in Limestone (%)	70 min	89	Initial Vicat (minutes)	45-375	90
Inorganic Processing Addition	5.0 max	0.0			
Potential Phase Compositions:			Mortar Bar Expansion (%) (C 1038)	-	0.009
C <sub>3</sub> S (%)	-	57			
C <sub>2</sub> S (%)	-	13	Heat of Hydration: 7 days, kJ/kg (cal/g) <sup>B</sup>	-	362 (86)
C <sub>3</sub> A (%)	8 max	6			
C <sub>4</sub> AF (%)	-	9			
C <sub>3</sub> S + 4.75C <sub>3</sub> A (%)	-	86.8			

### Tests Data on ASTM Optional Requirements

Chemical			Physical		
Item	Limit <sup>A</sup>	Result	Item	Limit <sup>A</sup>	Result
Equivalent Alkalies (%)	0.60 max	0.55	False Set %	50 Min	67

### Notes

A Dashes in the limit / result columns mean Not Applicable.

B Test result represents most recent value and is provided for information only. Analysis of Heat of Hydration has been carried out by CTL Group, Skokie, IL.

C It is permissible to exceed the specification limit assuming ASTM C 1038 Mortar Bar Expansion does not exceed 0.020 %.

Equivalent Alkalies (%) Minimum = 0.53, Maximum = 0.57

Adjusted per Annex A.1.6 of ASTM C 150 and AASHTO M 85.

This data may have been reported on previous mill certificates. It is typical of the cement being currently shipped.

### Additional Data

Inorganic Processing Addition Data		Base Cement Phase Composition	
Item	Result <sup>A</sup>	Item	Result
Type	-	C <sub>3</sub> S (%)	59
Amount (%)	-	C <sub>2</sub> S (%)	13
SiO <sub>2</sub> (%)	-	C <sub>3</sub> A (%)	6
Al <sub>2</sub> O <sub>3</sub> (%)	-	C <sub>4</sub> AF (%)	9
Fe <sub>2</sub> O <sub>3</sub> (%)	-		
CaO (%)	-		
SO <sub>3</sub> (%)	-		

**Holcim****Material Certification Report**

Material: Portland Cement  
 Type: I-II (C 150)

Test Period: 01-Mar-2010  
 To: 31-Mar-2010

**Certification**

Holcim cement meets the specifications of ASTM C 150 for Type I-II cement. This material complies with AASHTO M 85 specifications for Type I-II cement.

**General Information**

Supplier: Holcim (US) Inc.  
 Address: P.O. Box 649  
 Theodore, AL 36582  
 Telephone: (251) 443-1290  
 Date Issued: 08-Apr-2010

Source Location: Theodore Plant  
 P.O. Box 649  
 Theodore, AL 36582  
 Contact: Alissa Collins

The following information is based on average test data during the test period. The data is typical of cement shipped by Holcim; individual shipments may vary.

**Tests Data on ASTM Standard Requirements**

Chemical			Physical		
Item	Limit <sup>A</sup>	Result	Item	Limit <sup>A</sup>	Result
SiO <sub>2</sub> (%)	-	20.1	Air Content (%)	12 max	7
Al <sub>2</sub> O <sub>3</sub> (%)	6.0 max	4.9	Blaine Fineness (m <sup>2</sup> /kg)	260 min	376
Fe <sub>2</sub> O <sub>3</sub> (%)	6.0 max	3.6			
CaO (%)	-	64.2			
MgO (%)	6.0 max	1.2	Autoclave Expansion (%) (C 151)	0.80 max	0.03
SO <sub>3</sub> (%) <sup>C</sup>	3.0 max	3.6	Compressive Strength MPa (psi):		
Loss on Ignition (%)	3.0 max	1.7			
Insoluble Residue (%)	0.75 max	0.20	3 days	10.0 (1450) min	29.1 (4220)
CO <sub>2</sub> (%)	-	0.4	7 days	17.0 (2470) min	36.4 (5280)
Limestone (%)	5.0 max	0.9			
CaCO <sub>3</sub> in Limestone (%)	70 min	89	Initial Vicat (minutes)	45-375	89
Inorganic Processing Addition	5.0 max	0.0			
Potential Phase Compositions:			Mortar Bar Expansion (%) (C 1038)	-	0.002
C <sub>3</sub> S (%)	-	60			
C <sub>2</sub> S (%)	-	12	Heat of Hydration: 7 days, kJ/kg (cal/g) <sup>B</sup>	-	353 (84)
C <sub>3</sub> A (%)	8 max	7			
C <sub>4</sub> AF (%)	-	11			
C <sub>3</sub> S + 4.75C <sub>3</sub> A (%)	-	93.3			

**Tests Data on ASTM Optional Requirements**

Chemical			Physical		
Item	Limit <sup>A</sup>	Result	Item	Limit <sup>A</sup>	Result
Equivalent Alkalies (%)	0.60 max	0.42			

**Notes**

<sup>A</sup> Dashes in the limit / result columns mean Not Applicable.

<sup>B</sup> Test result represents most recent value and is provided for information only. Analysis of Heat of Hydration has been carried out by CTLGroup, Skokie, IL.

<sup>C</sup> It is permissible to exceed the specification limit assuming ASTM C 1038 Mortar Bar Expansion does not exceed 0.020 %.

Adjusted per Annex A1.6 of ASTM C150 and AASHTO M85.

This data may have been reported on previous mill certificates. It is typical of the cement being currently shipped.

**Additional Data**

Inorganic Processing Addition Data

Base Cement Phase Composition

**Holcim****Material Certification Report**

Material: Portland Cement  
 Type: I-II (C 150)

Test Period: 01-Mar-2010  
 To: 31-Mar-2010

**Certification**

Holcim cement meets the specifications of ASTM C 150 for Type I-II cement. This material complies with AASHTO M 85 specifications for Type I-II cement.

**General Information**

Supplier: Holcim (US) Inc.  
 Address: P.O. Box 649  
 Theodore, AL 36582  
 Telephone: (251) 443-1290  
 Date Issued: 08-Apr-2010

Source Location: Theodore Plant  
 P.O. Box 649  
 Theodore, AL 36582  
 Contact: Alissa Collins

The following information is based on average test data during the test period. The data is typical of cement shipped by Holcim; individual shipments may vary.

Item	Result <sup>A</sup>	Item	Result
Type	-	C <sub>3</sub> S (%)	60
Amount (%)	-	C <sub>2</sub> S (%)	13
SiO <sub>2</sub> (%)	-	C <sub>3</sub> A (%)	7
Al <sub>2</sub> O <sub>3</sub> (%)	-	C <sub>4</sub> AF (%)	11
Fe <sub>2</sub> O <sub>3</sub> (%)	-		
CaO (%)	-		
SO <sub>3</sub> (%)	-		



**LKD Material Certification Report – Lhoist North America, Inc.**

Lime Kiln Dust (LKD) QC Laboratory Test Results	
Lime Kiln Dust (LKD)	Available Free Lime (CaO) (%)
Project Criteria	> 10%
Lhoist - O'Neal Plant	
Kiln 1	69.67
Kiln 2	50.49
NOTES:	
% - percent	

# O'Neal Plant LKD

## March, 2010 Composite Analysis

O'Neal K1		O'Neal K2
Availaable CaO	43.0	21.2
CaO %	69.67	50.49
MgO %	3.23	1.96
SiO2 %	7.94	16.14
Al2O3 %	3.53	7.14
Fe2O3 %	0.91	2.16
Na2O %	0.05	0.11
K2O %	0.63	1.49
SrO %	0.05	0.07
MnO %	0.01	0.01
S %	0.98	2.69
LOI 1000°C	13.52	16.76

**LKD Material Certification Report – Mintek Resources, Inc.**



Lime Kiln Dust (LKD) QC Laboratory Test Results	
Lime Kiln Dust (LKD)	Available Free Lime (CaO) (%)
Project Criteria	> 10%
Mintek – Cheney Lime Facility	
Alabama No.1	66.98

NOTES:

% - percent

**Calciment®****Typical Chemical Analysis:****Alabama #1:**

<b><u>Element</u></b>	<b><u>Formula</u></b>	<b><u>Percent</u></b>
Calcium Oxide	CaO	66.98
Magnesium Oxide	MgO	2.31
Silicon Dioxide	SiO <sub>2</sub>	12.93
Aluminum Oxide	Al <sub>2</sub> O <sub>3</sub>	6.16
Iron Oxide	Fe <sub>2</sub> O <sub>3</sub>	0.87
Potassium Oxide	K <sub>2</sub> O <sub>3</sub>	1.99
Sulfur Trioxide	SO <sub>3</sub>	7.11
Sodium Oxide	Na <sub>2</sub> O	0.60
Titanium Dioxide	TiO <sub>2</sub>	0.21
Manganese Dioxide	MnO <sub>2</sub>	0.04
Phosphorus Pentoxide	P <sub>2</sub> O <sub>5</sub>	0.31
Strontium Oxide	SrO	0.08
Barium Oxide	BaO	0.08

Avail. Calcium Oxide	37.3
Loss on Ignition (LOI)	13.01
Moisture	0.04

## Appendix J: Reagent Laboratory QA Test Results

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Type I Portland Cement

Lime Kiln Dust (LKD)

**Type I Portland Cement**



Type I Portland Cement QA Laboratory Test Results	
Type I Portland Cement	Equivalent Alkalies (%)
Project Criteria	< 0.60%
Composite Sample	0.44
NOTES:	
% - percent	

**Client:** Brown and Caldwell  
**Project:** Chemical Analysis

**Contact:** E. Goodhall  
**Submitter:** Rick Isaac  
**Date Received:** May 25, 2010

**CTL Project No.:** 407927  
**CTL Proj. Mgr.:** Don Broton  
**Analyst:** Kelly, Naamane  
**Approved:** R W Jackson  
**Date Analyzed:** May 27, 2010  
**Date Reported:** May 27, 2010

### ASTM C 150-07 STANDARD CHEMICAL REQUIREMENTS

	Cement Type					Client ID:		Type I Portland Cement	
	I / IA	II / IIA	II(MH) / II(MHA)	III	IV	V	CTL ID:	2590501	Test Results
Silicon dioxide (SiO <sub>2</sub> ), min. %	---	---	---	---	---	---	---	---	19.6
Aluminum oxide (Al <sub>2</sub> O <sub>3</sub> ), max. %	---	6.0	6.0	---	---	---	---	---	4.4
Ferric oxide (Fe <sub>2</sub> O <sub>3</sub> ), max. %	---	6.0 <sup>A,B</sup>	6.0 <sup>A,B</sup>	---	6.5	---	---	---	3.1
Calcium oxide (CaO)	---	---	---	---	---	---	---	---	63.5
Magnesium oxide (MgO), max. %	6.0	6.0	6.0	6.0	6.0	6.0	---	---	2.6
Sulfur trioxide (SO <sub>3</sub> )	---	---	---	---	---	---	---	---	---
When (C <sub>3</sub> A) is 8% or less, max. %	3.0	3.0	3.0	3.5	2.3	2.3	---	---	3.5
When (C <sub>3</sub> A) is more than 8%, max. %	3.5	---	---	4.5	---	---	---	---	---
Sodium oxide (Na <sub>2</sub> O)	---	---	---	---	---	---	---	---	0.11
Potassium oxide (K <sub>2</sub> O)	---	---	---	---	---	---	---	---	0.51
Titanium oxide (TiO <sub>2</sub> )	---	---	---	---	---	---	---	---	0.24
Phosphorus pentoxide (P <sub>2</sub> O <sub>5</sub> )	---	---	---	---	---	---	---	---	0.09
Manganese oxide (Mn <sub>2</sub> O <sub>3</sub> )	---	---	---	---	---	---	---	---	0.03
Strontium oxide (SrO)	---	---	---	---	---	---	---	---	0.06
Chromic oxide (Cr <sub>2</sub> O <sub>3</sub> )	---	---	---	---	---	---	---	---	<0.01
Zinc oxide (ZnO)	---	---	---	---	---	---	---	---	<0.01
Loss on ignition (950°C), max. %	3.0	3.0	3.0	3.0	2.5	3.0	---	---	2.5
Total	---	---	---	---	---	---	---	---	100.27

Equivalent alkalis (Na<sub>2</sub>O+0.658K<sub>2</sub>O)

Insoluble residue, max. %

Free calcium oxide

### Calculated Compounds per ASTM C 150-07

Tricalcium silicate (C<sub>3</sub>S), max. %

Dicalcium silicate (C<sub>2</sub>S), min. %

Tricalcium aluminate (C<sub>3</sub>A), max. %

Tetracalcium aluminoferrite (C<sub>4</sub>AF)

ss(C<sub>4</sub>AF + C<sub>2</sub>F) or (C<sub>4</sub>AF + 2(C<sub>3</sub>A)) as applicable, max. %

C<sub>3</sub>S + 4.75 C<sub>3</sub>A

A: Does not apply when heat of hydration limit of ASTM C 150-07 - Table 4 is specified.  
B: Does not apply when sulfate resistance limit of ASTM C 150-07 - Table 4 is specified.  
C: The 7 day heat of hydration shall be conducted and reported for informational purposes at least once every six months.

Notes:  
1. This analysis represents specifically the sample submitted.  
2. Oxide analysis by X-ray fluorescence spectrometry. Sample fused at 1000°C with Li<sub>2</sub>B<sub>4</sub>O<sub>7</sub>. X-Ray Fluorescence oxide analysis meets the precision and accuracy requirements for rapid methods per ASTM C 114-09. Most recent re-qualification date is June 3, 2009. Insoluble residue and free calcium oxide tested in accordance with ASTM C 114-09.  
3. This report may not be reproduced except in its entirety.

### OPTIONAL CHEMICAL REQUIREMENTS \*

C<sub>3</sub>A - for moderate sulfate resistance

C<sub>3</sub>A - for high sulfate resistance

For Low Alkali - (Na<sub>2</sub>O+0.658K<sub>2</sub>O), max. %

\* see Table 2 of ASTM C 150-07 for additional information

	I	II	III	IV	V
C <sub>3</sub> A - for moderate sulfate resistance	---	---	8	---	---
C <sub>3</sub> A - for high sulfate resistance	---	---	5	---	---
For Low Alkali - (Na <sub>2</sub> O+0.658K <sub>2</sub> O), max. %	0.60	0.60	0.60	0.60	0.60

**Client:** Brown and Caldwell  
**Project:** ASTM C 150-07 Physical Testing

**Contact:** E. Goodhall  
**Submitter:** Rick Isaac  
**Date Received:** May 25, 2010

**CTL Project No.:** 407927  
**CTL Proj. Mgr.:** Don Broton  
**Analyst:** Celestin / Hernandez  
**Approved:** K. Amelio  
**Date Analyzed:** various  
**Date Reported:** June 29, 2010

ASTM C 150-07 STANDARD PHYSICAL REQUIREMENTS

	Cement Type				Client ID: CTL ID:	Type I Portland Cement 2590501
	I	II	III	IV		

Air content of mortar, volume %:

maximum:	12	12	12	12	12	6
minimum:	---	---	---	---	---	---

Fineness, specific surface \*\*:

Turbidimeter Avg., (min~max), m<sup>2</sup>/kg  
any one sample (min~max), m<sup>2</sup>/kg  
Air permeability Avg., (min~max), m<sup>2</sup>/kg  
any one sample (min~max), m<sup>2</sup>/kg

No. 325 sieve, % passing

Autoclave expansion, max. %:

Strength, compression, min., Mpa (psi)  
1 day

3 days

7 days

28 days

Time of setting (alternative methods):

Gillmore test:

Initial set, minimum minutes:

Final set, maximum minutes:

Vicat test:

Initial set, minimum minutes:

Final set, maximum minutes:

Final set, minutes:

+ When the optional heat of hydration or chemical limit on the sum of the C<sub>3</sub>S and C<sub>3</sub>A is specified.

++ The designation "na" denotes no upper limit specified.

\* The time of setting is that described as initial setting time in Method C 191. Test conducted using Method B of ASTM C 191-08.

Lime Kiln Dust (LKD)



Lime Kiln Dust (LKD) QA Laboratory Test Results	
Lime Kiln Dust (LKD)	Available Free Lime (CaO) (%)
Project Criteria	> 10%
Lhoist - O'Neal Plant	
Composite Sample	58.5

NOTES:  
% - percent

Client: **Brown and Caldwell**  
Project: **Chemical Analysis**  
  
Contact: **E. Goodhall**  
Submitter: **Rick Issac**  
Date Received: **May 25, 2010**

CTL Project No.: **407927**  
CTL Proj. Mgr.: **Don Broton**  
Analyst: **R. Kelly**  
Approved: **R W Stevenson**  
Date Analyzed: **May 27, 2010**  
Date Reported: **May 27, 2010**

### REPORT OF CHEMICAL ANALYSIS

Client's Sample ID: Lime Kiln Dust  
Material type: Lime Kiln Dust  
CTL Sample ID: 2590502

Analyte	Weight %
SiO <sub>2</sub>	5.34
Al <sub>2</sub> O <sub>3</sub>	2.04
Fe <sub>2</sub> O <sub>3</sub>	0.97
CaO	58.50
MgO	11.06
SO <sub>3</sub>	3.52
Na <sub>2</sub> O	0.05
K <sub>2</sub> O	0.46
TiO <sub>2</sub>	0.10
P <sub>2</sub> O <sub>5</sub>	0.02
Mn <sub>2</sub> O <sub>3</sub>	0.01
SrO	0.03
Cr <sub>2</sub> O <sub>3</sub>	<0.01
ZnO	<0.01
BaO	<0.01
L.O.I. (950°C) <sup>2</sup>	18.32
Total	100.41

Alkalies as Na<sub>2</sub>O 0.35

- Notes:
1. This analysis represents specifically the sample submitted.
  2. Results reported on an oven dry (105°C) basis.
  3. Oxide analysis by X-ray fluorescence spectrometry. Samples fused at 1000°C with Li<sub>2</sub>B<sub>4</sub>O<sub>7</sub>/LiBO<sub>2</sub>.
  4. Elemental sulfur and sulfide sulfur may be lost during high temperature ignition and fusion.
  5. This report may not be reproduced except in its entirety.

Lime Kiln Dust (LKD) QA Laboratory Test Results	
Lime Kiln Dust (LKD)	Available Free Lime (CaO) (%)
Project Criteria	> 10%
Mintek – Cheney Lime Facility	
Composite Sample	66.53
NOTES:	
% - percent	

Client: **Brown and Caldwell**  
Project: **Chemical Analysis**

CTL Project No.: **407927**  
CTL Proj. Mgr.: **Don Broton**  
Analyst: **R. Kelly**  
Approved: **Don Broton**  
Date Analyzed: **June 30, 2010**  
Date Reported: **June 30, 2010**

Contact: **E. Goodhall**  
Submitter: **Rick Isaac**  
Date Received: **June 9, 2010**

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**REPORT OF CHEMICAL ANALYSIS**

---

Client's Sample ID: Lime Kiln Dust Mintek 6/5/10, 13:05  
Material type: Kiln Dust  
CTL Sample ID: 2602103

<u>Analyte</u>	<u>Weight %</u>
SiO <sub>2</sub>	8.87
Al <sub>2</sub> O <sub>3</sub>	3.88
Fe <sub>2</sub> O <sub>3</sub>	2.01
CaO	66.53
MgO	2.60
SO <sub>3</sub>	6.16
Na <sub>2</sub> O	0.06
K <sub>2</sub> O	0.72
TiO <sub>2</sub>	0.20
P <sub>2</sub> O <sub>5</sub>	0.01
Mn <sub>2</sub> O <sub>3</sub>	0.01
SrO	0.04
Cr <sub>2</sub> O <sub>3</sub>	<0.01
ZnO	<0.01
BaO	<0.01
L.O.I. (950°C) <sup>4</sup>	8.58
<u>Total</u>	<u>99.65</u>

Alkalies as Na<sub>2</sub>O 0.54

- 
- Notes:
1. This analysis represents specifically the sample submitted.
  2. Results reported on an oven dry (105°C) basis.
  3. Oxide analysis by X-ray fluorescence spectrometry. Samples fused at 1000°C with Li<sub>2</sub>B<sub>4</sub>O<sub>7</sub>/LiBO<sub>2</sub>.
  4. Volatile elements may be lost during high temperature ignition and fusion.
  5. This report may not be reproduced except in its entirety.



## **Appendix K: Solidified Sludge Strength Test Results**

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Strength Test Results				
Cell	Strength @ 7 days (psi)	Strength @ 14 days (psi) <sup>1</sup>	Strength @ 16 days (psi) <sup>1</sup>	
Project Criteria: ≥ 12 psi @ 28 days or sooner				
1	10	27		
2	22			
3	0	18		
4	48			
5	42			
6	14			
7	0	17		
8	0	11 <sup>(3)</sup>	17	
9	13 <sup>(2)</sup>			
10	15 <sup>(2)</sup>			
11	24			
12	29			

NOTES:

psi – pounds per square inch

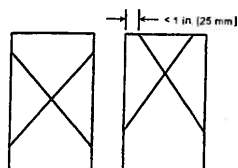
1. 14-day and 16-day breaks were only required if the 7-day break was less than 12 psi.
2. 6-day break
3. 13-day break

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** P. Brindise  
**Approved:** W. Morrison  
**Date:** June 2, 2010**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

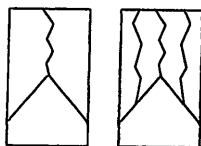
Specimen Identification	Solidified Sludge, 1724
Age at Test, days	7
Test Date	06/01/10
Cure Condition	In Mold
Diameter 1, in.	4.01
Diameter 2, in.	4.01
Average Diameter, in.	4.01
Cross-Sectional Area, sq in.	12.63
Length, in.	8.19
Maximum Load, lb	170
Compressive Strength, psi	13
Fracture Pattern	Type 1

**Notes:**

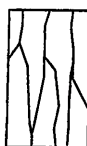
1. Test specimen was reportedly cast on May 25, 2010.

**Schematic of Typical Fracture Patterns**

**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. (25 mm) of  
cracking through caps



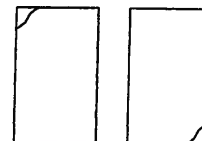
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed

**Client:** Brown & Caldwell**Project:** Grenada Sludge Lagoon Closure**Contact:** Mr. E. Goodhall**Submitter:** D. Broton, CTLGroup**CTLGroup Project No:** 407927**CTLGroup Project Mgr.:** D. Broton**Technician:** G. Neiweem**Approved:** W. Morrison**Date:** June 9, 2010

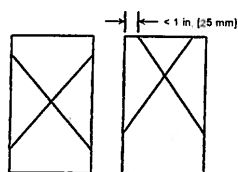
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Solidified Sludge, 1724
Age at Test, days	14
Test Date	06/08/10
Cure Condition	In Mold
Diameter 1, in.	4.02
Diameter 2, in.	3.99
Average Diameter, in.	4.01
Cross-Sectional Area, sq in.	12.60
Length, in.	8.30
Maximum Load, lb	340
Compressive Strength, psi	27
Fracture Pattern	Type 1

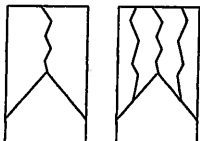
**Notes:**

1. Test specimen was reportedly cast on May 25, 2010.

**Schematic of Typical Fracture Patterns**



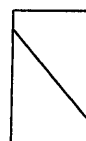
**Type 1**  
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



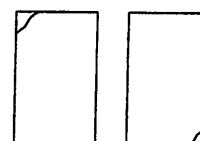
**Type 2**  
Well-formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



**Type 3**  
Columnar vertical cracking through both ends, no well-formed cones



**Type 4**  
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1



**Type 5**  
Side fractures at top or bottom (occur commonly with unbounded caps)



**Type 6**  
Similar to Type 5 but end of cylinder is pointed



**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 4, 2010

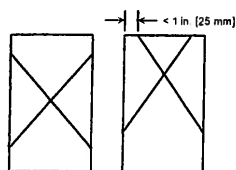
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 2
Age at Test, days	7
Test Date	06/03/10
Cure Condition	In Mold
Diameter 1, in.	4.00
Diameter 2, in.	4.02
Average Diameter, in.	4.01
Cross-Sectional Area, sq in.	12.63
Length, in.	8.21
Maximum Load, lb	280
Compressive Strength, psi	22
Fracture Pattern	Type 1

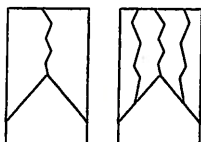
**Notes:**

1. Test specimen was reportedly cast on May 27, 2010.

**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. (25 mm) of  
cracking through caps



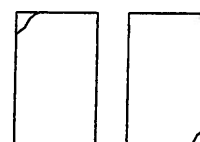
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 10, 2010

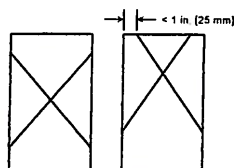
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 2
Age at Test, days	14
Test Date	06/10/10
Cure Condition	Moist
Diameter 1, in.	3.98
Diameter 2, in.	4.03
Average Diameter, in.	4.01
Cross-Sectional Area, sq in.	12.60
Length, in.	8.32
Maximum Load, lb	400
Compressive Strength, psi	32
Fracture Pattern	Type 4

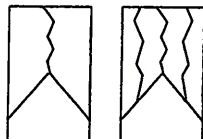
**Notes:**

1. Test specimen was reportedly cast on May 27, 2010.

**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



**Type 2**  
Well-formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



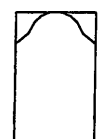
**Type 3**  
Columnar vertical cracking through both ends, no well-formed cones



**Type 4**  
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1



**Type 5**  
Side fractures at top or bottom (occur commonly with unbounded caps)



**Type 6**  
Similar to Type 5 but end of cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure

**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 14, 2010

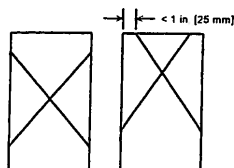
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 3
Age at Test, days	7
Test Date	06/11/10
Cure Condition	In Mold
Diameter 1, in.	3.97
Diameter 2, in.	4.01
Average Diameter, in.	3.99
Cross-Sectional Area, sq in.	12.50
Length, in.	8.17
Maximum Load <sup>2</sup> , lb	0
Compressive Strength, psi	0
Fracture Pattern	Type 3

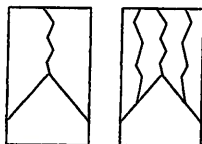
**Notes:**

1. Test specimen was reportedly cast on June 4, 2010.
2. Test specimen was an extremely soft material that deformed under load.

**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. (25 mm) of  
cracking through caps



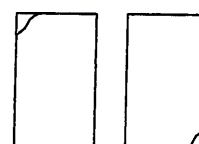
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 18, 2010

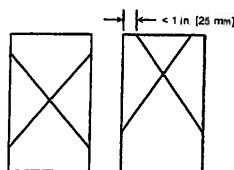
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 3
Age at Test, days	14
Test Date	06/18/10
Cure Condition	In Mold
Diameter 1, in.	3.99
Diameter 2, in.	3.99
Average Diameter, in.	3.99
Cross-Sectional Area, sq in.	12.50
Length, in.	8.11
Maximum Load, lb	220
Compressive Strength, psi	18
Fracture Pattern	Type 4

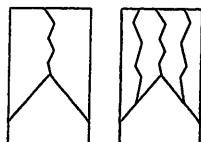
**Notes:**

1. Test specimen was reportedly cast on June 4, 2010.

**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



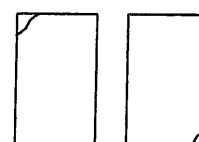
**Type 2**  
Well-formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



**Type 3**  
Columnar vertical cracking through both ends, no well-formed cones



**Type 4**  
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1



**Type 5**  
Side fractures at top or bottom (occur commonly with unbounded caps)



**Type 6**  
Similar to Type 5 but end of cylinder is pointed



**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 15, 2010

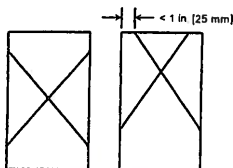
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 4
Age at Test, days	7
Test Date	06/14/10
Cure Condition	In Mold
Diameter 1, in.	4.00
Diameter 2, in.	4.01
Average Diameter, in.	4.01
Cross-Sectional Area, sq in.	12.60
Length, in.	8.34
Maximum Load, lb	600
Compressive Strength, psi	48
Fracture Pattern	Type 1

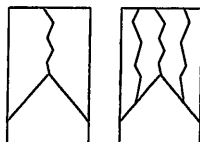
**Notes:**

1. Test specimen was reportedly cast on June 7, 2010.

**Schematic of Typical Fracture Patterns**



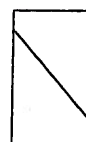
**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. [25 mm] of  
cracking through caps



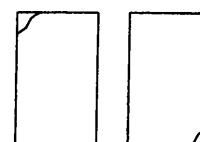
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



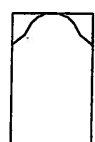
**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 17, 2010

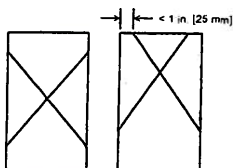
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 5
Age at Test, days	7
Test Date	06/16/10
Cure Condition	In Mold
Diameter 1, in.	4.01
Diameter 2, in.	4.00
Average Diameter, in.	4.01
Cross-Sectional Area, sq in.	12.60
Length, in.	8.22
Maximum Load, lb	530
Compressive Strength, psi	42
Fracture Pattern	Type 1

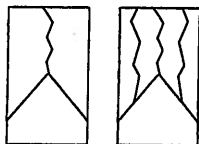
**Notes:**

1. Test specimen was reportedly cast on June 9, 2010.

**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



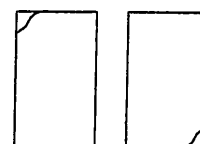
**Type 2**  
Well-formed cone on one end, vertical cracks running through both caps, no well-defined cone on other end



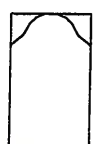
**Type 3**  
Columnar vertical cracking through both ends, no well-formed cones



**Type 4**  
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1



**Type 5**  
Side fractures at top or bottom (occur commonly with unbounded caps)



**Type 6**  
Similar to Type 5 but end of cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 18, 2010

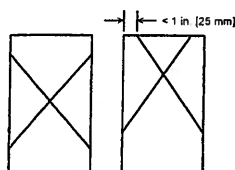
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 6
Age at Test, days	7
Test Date	06/18/10
Cure Condition	In Mold
Diameter 1, in.	3.98
Diameter 2, in.	4.00
Average Diameter, in.	3.99
Cross-Sectional Area, sq in.	12.50
Length, in.	8.08
Maximum Load, lb	180
Compressive Strength, psi	14
Fracture Pattern	Type 1

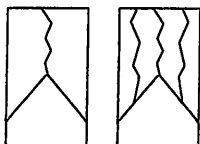
**Notes:**

1. Test specimen was reportedly cast on June 11, 2010.

**Schematic of Typical Fracture Patterns**



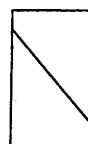
**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. [25 mm] of  
cracking through caps



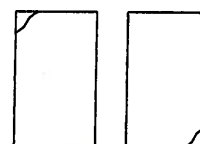
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 21, 2010

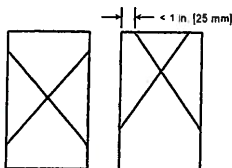
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 7
Age at Test, days	14
Test Date	06/18/10
Cure Condition	In Mold
Diameter 1, in.	4.01
Diameter 2, in.	3.99
Average Diameter, in.	4.00
Cross-Sectional Area, sq in.	12.57
Length, in.	8.04
Maximum Load, lb	210
Compressive Strength, psi	17
Fracture Pattern	Type 1

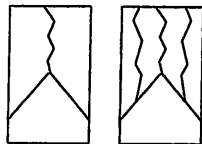
**Notes:**

1. Test specimen was reportedly cast on June 7, 2010.

**Schematic of Typical Fracture Patterns**



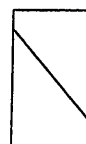
**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. [25 mm] of  
cracking through caps



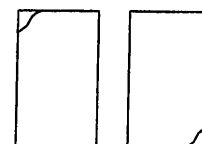
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



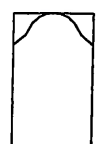
**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed



**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 25, 2010

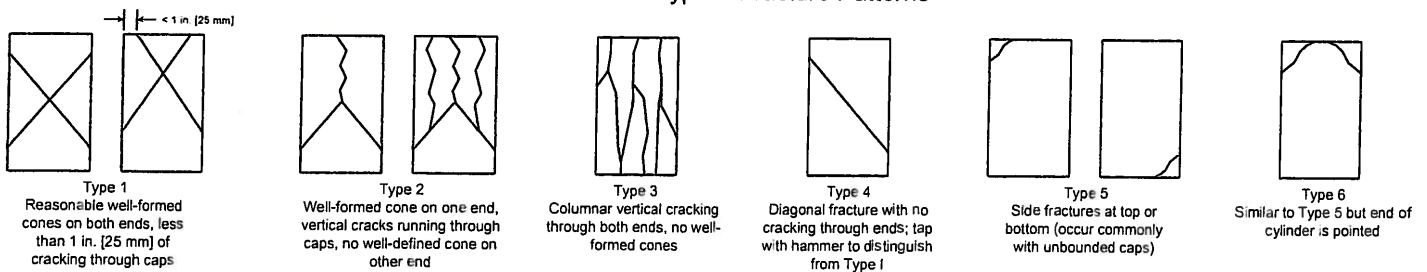
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 8
Age at Test, days	14
Test Date	06/25/10
Cure Condition	In Mold
Diameter 1, in.	3.84
Diameter 2, in.	3.78
Average Diameter, in.	3.81
Cross-Sectional Area, sq in.	11.40
Length, in.	8.03
Maximum Load, lb	120
Compressive Strength, psi	11
Fracture Pattern	Type 4

**Notes:**

1. Test specimen was reportedly cast on June 11, 2010.

**Schematic of Typical Fracture Patterns**



**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 28, 2010

**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

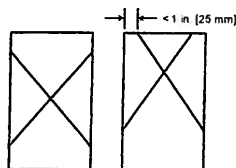
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 8
Age at Test, days	17
Test Date	06/28/10
Cure Condition	In Mold
Diameter 1, in.	3.72
Diameter 2, in.	3.69
Average Diameter, in.	3.71
Cross-Sectional Area, sq in.	10.78
Length, in.	7.96
Maximum Load, lb	180
Compressive Strength, psi	17
Fracture Pattern	Type 1

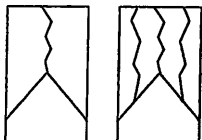
**Notes:**

1. Test specimen was reportedly cast on June 11, 2010.

**Schematic of Typical Fracture Patterns**



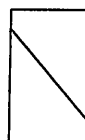
**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. [25 mm] of  
cracking through caps



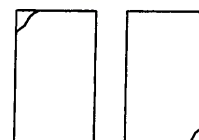
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 24, 2010

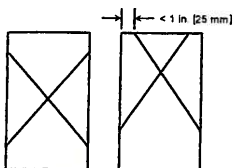
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 9
Age at Test, days	7
Test Date	06/24/10
Cure Condition	In Mold
Diameter 1, in.	3.89
Diameter 2, in.	3.91
Average Diameter, in.	3.90
Cross-Sectional Area, sq in.	11.95
Length, in.	7.97
Maximum Load, lb	160
Compressive Strength, psi	13
Fracture Pattern	Type 1

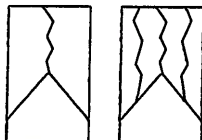
**Notes:**

1. Test specimen was reportedly cast on June 17, 2010.

**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed cones on both ends, less than 1 in. (25 mm) of cracking through caps



**Type 2**  
Well-formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



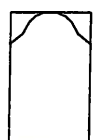
**Type 3**  
Columnar vertical cracking through both ends, no well-formed cones



**Type 4**  
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1



**Type 5**  
Side fractures at top or bottom (occur commonly with unbounded caps)



**Type 6**  
Similar to Type 5 but end of cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 24, 2010

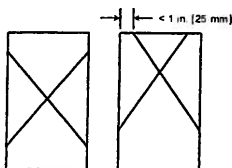
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 10
Age at Test, days	7
Test Date	06/24/10
Cure Condition	In Mold
Diameter 1, in.	3.91
Diameter 2, in.	3.91
Average Diameter, in.	3.91
Cross-Sectional Area, sq in.	12.01
Length, in.	7.92
Maximum Load, lb	180
Compressive Strength, psi	15
Fracture Pattern	Type 4

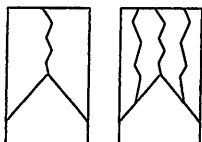
**Notes:**

1. Test specimen was reportedly cast on June 17, 2010.

**Schematic of Typical Fracture Patterns**



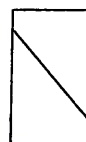
**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. [25 mm] of  
cracking through caps



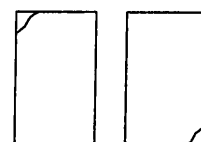
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



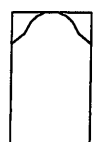
**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends; tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed



**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 23, 2010

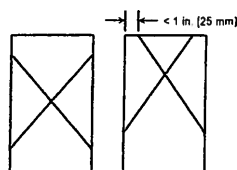
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 11
Age at Test, days	7
Test Date	06/23/10
Cure Condition	In Mold
Diameter 1, in.	3.99
Diameter 2, in.	3.98
Average Diameter, in.	3.99
Cross-Sectional Area, sq in.	12.47
Length, in.	8.29
Maximum Load, lb	300
Compressive Strength, psi	24
Fracture Pattern	Type 1

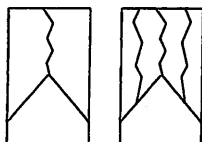
**Notes:**

1. Test specimen was reportedly cast on June 17, 2010.

**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed cones on both ends, less than 1 in. [25 mm] of cracking through caps



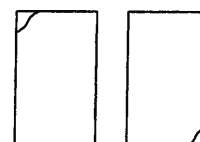
**Type 2**  
Well-formed cone on one end, vertical cracks running through caps, no well-defined cone on other end



**Type 3**  
Columnar vertical cracking through both ends, no well-formed cones



**Type 4**  
Diagonal fracture with no cracking through ends; tap with hammer to distinguish from Type 1



**Type 5**  
Side fractures at top or bottom (occur commonly with unbounded caps)



**Type 6**  
Similar to Type 5 but end of cylinder is pointed

**Client:** Brown & Caldwell  
**Project:** Grenada Sludge Lagoon Closure  
**Contact:** Mr. E. Goodhall  
**Submitter:** D. Broton, CTLGroup

**CTLGroup Project No:** 407927  
**CTLGroup Project Mgr.:** D. Broton  
**Technician:** G. Neiweem  
**Approved:** W. Morrison  
**Date:** June 23, 2010

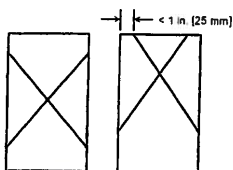
**ASTM C 39**  
**COMPRESSIVE STRENGTH OF CYLINDRICAL CONCRETE SPECIMENS**

Specimen Identification	Cell 12
Age at Test, days	7
Test Date	06/23/10
Cure Condition	In Mold
Diameter 1, in.	3.96
Diameter 2, in.	4.00
Average Diameter, in.	3.98
Cross-Sectional Area, sq in.	12.44
Length, in.	8.17
Maximum Load, lb	360
Compressive Strength, psi	29
Fracture Pattern	Type 1

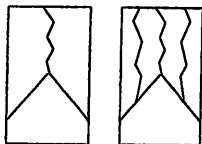
**Notes:**

1. Test specimen was reportedly cast on June 17, 2010.

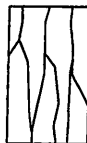
**Schematic of Typical Fracture Patterns**



**Type 1**  
Reasonable well-formed  
cones on both ends, less  
than 1 in. [25 mm] of  
cracking through caps



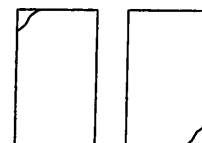
**Type 2**  
Well-formed cone on one end,  
vertical cracks running through  
caps, no well-defined cone on  
other end



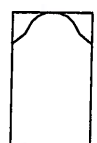
**Type 3**  
Columnar vertical cracking  
through both ends, no well-  
formed cones



**Type 4**  
Diagonal fracture with no  
cracking through ends, tap  
with hammer to distinguish  
from Type 1



**Type 5**  
Side fractures at top or  
bottom (occur commonly  
with unbounded caps)



**Type 6**  
Similar to Type 5 but end of  
cylinder is pointed

## Appendix L: Coarse Aggregate QC Laboratory Test Results

---

Coarse Aggregate QC Laboratory Test Results				
No. 57 Stone	Sieve Analysis	Permeability (cm/sec)	Carbonate Content (%)	
Project Criteria	Not more than 5% of the material passing through the No. 200 sieve	$\geq 0.12$ cm/sec	$\leq 5\%$	
Composite Sample	0	$1.3 \times 10^{-01} - 1.8 \times 10^{-01}$	0.2	

NOTES:

cm/sec – centimeters per second

% - percent



# RIGID WALL CONSTANT HEAD PERMEABILITY

ASTM D 2434-68 (SOP-S35) Modified

Client WRScompass  
Client Reference Grenada, MS Lagoon Closure  
Project No. 2010-322-01  
Lab ID 2010-322-01-01

Boring No. #57 STONE  
Depth(ft.) NA  
Sample No. 6/22/10  
Visual BROWN STONE

## Unit Weight

Wt. of Wet Material (gm)	14022
Average Length (in)	12.2
Permeameter Diameter (in)	7.5
Sample Volume (cc)	8832.3
Unit Dry Weight (gm/cc)	1.58
Unit Dry Weight (pcf)	98.6

## Water Content

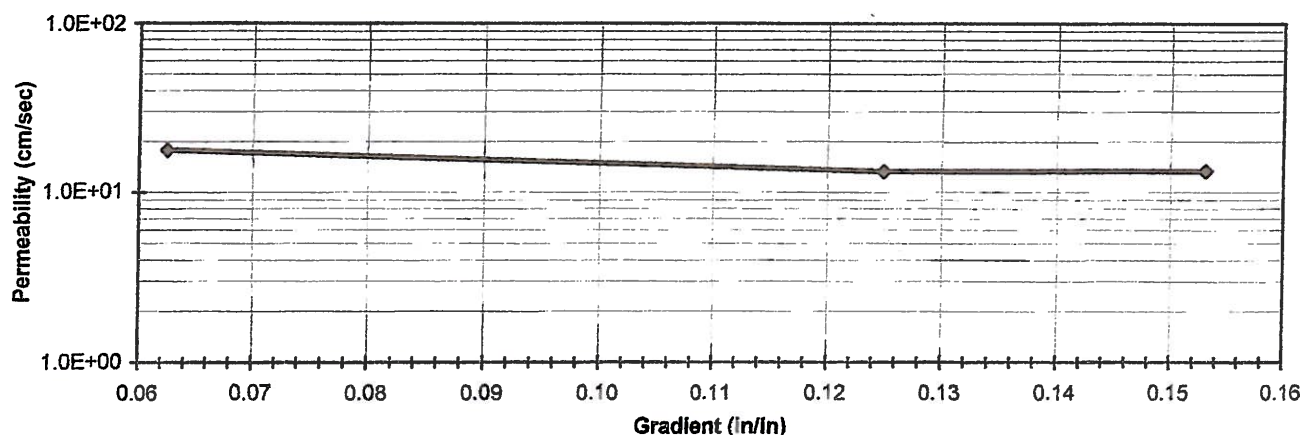
Tare Number	630
Wt. of Tare & Wet Mat.(gm)	587.30
Wt. of Tare & Dry Mat.(gm)	585.00
Wt. of Tare (gm)	82.30
Wt. Water (gm)	2.30
Wt. of Dry Material (gm)	502.70

	Test 1	Test 2	Test 3
<b>Piezometer Spacing (in)</b>	<b>8</b>	<b>8</b>	<b>8</b>
<b>Temperature (° C)</b>	<b>23.7</b>	<b>24.5</b>	<b>24.6</b>
<b>Temp. Correction Factor</b>	<b>0.9160</b>	<b>0.8993</b>	<b>0.8972</b>

**Water Content (%)** **0.5**  
(Measured)

**Load (psf)** **NA**

Test No.	Replicate No.	Head (in)	Gradient (in/in)	Elapsed Time (sec)	Collection Tube (divisions)	Collected Volume (cc)	Permeability 20° C (cm/s)	Average Permeability (cm/s)
1	1	0.50	0.06	20.9	5	7220.5	1.8E+01	
1	2	0.50	0.06	20.8	5	7220.5	1.8E+01	1.8E+01
1	3	0.50	0.06	21.0	5	7220.5	1.8E+01	
2	1	1.00	0.13	13.7	5	7220.5	1.3E+01	
2	2	1.00	0.13	13.7	5	7220.5	1.3E+01	1.3E+01
2	3	1.00	0.13	13.9	5	7220.5	1.3E+01	
3	1	1.23	0.15	11.3	5	7220.5	1.3E+01	
3	2	1.23	0.15	11.1	5	7220.5	1.3E+01	1.3E+01
3	3	1.23	0.15	10.9	5	7220.5	1.4E+01	

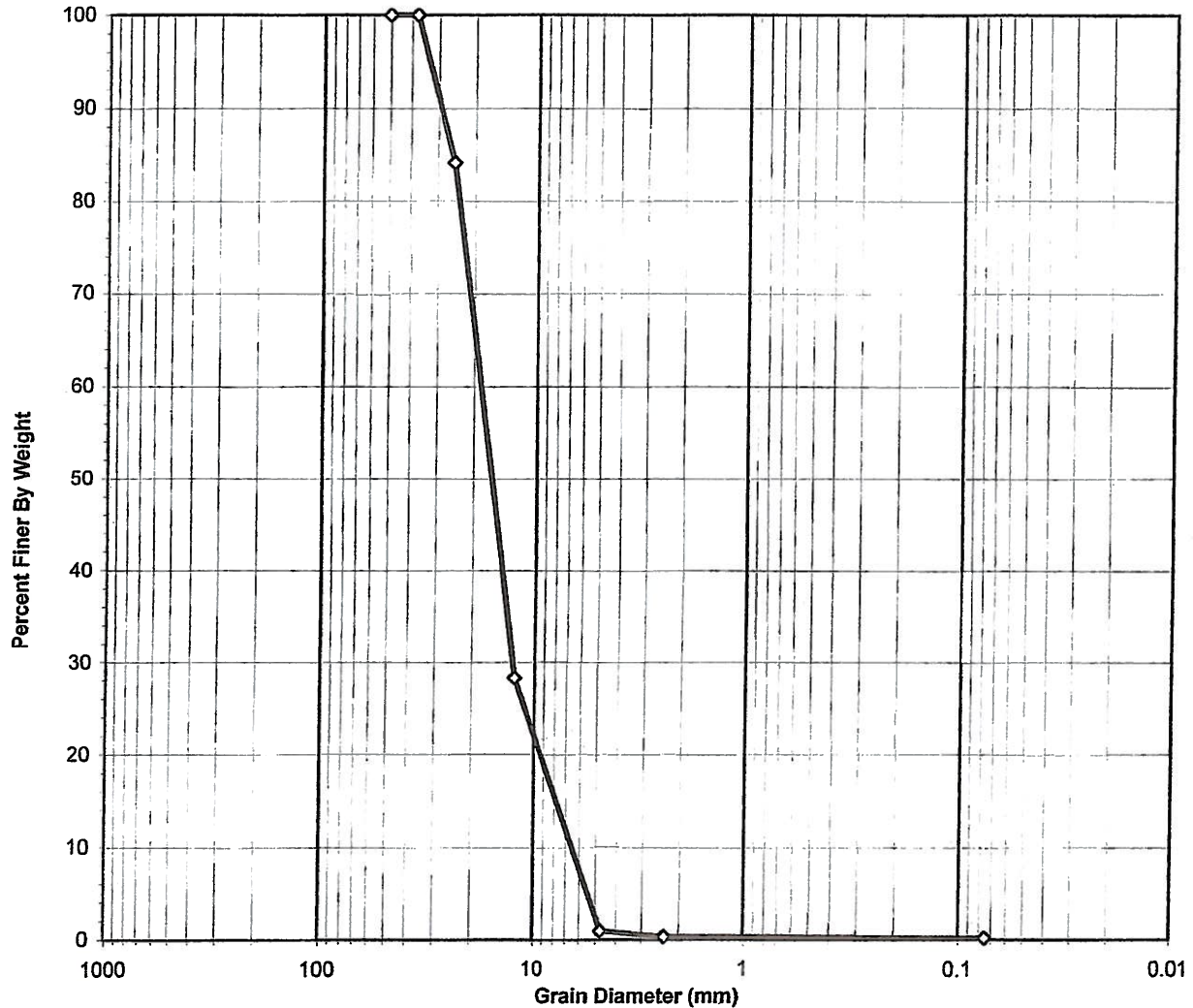


Tested By TMO Date 7/2/10 Checked By *WB* Date 7-6-10

**WASH SIEVE ANALYSIS**  
AASHTO # 57 (ASTM C136-06)

Client	WRscompass	Boring No.	#57 STONE
Client Reference	Grenada, MS Lagoon Closure	Depth(ft.)	NA
Project No.	2010-322-01	Sample No.	6/22/10
Lab ID	2010-322-01-01		
		Color	BROWN

USCS	gravel	sand	silt and clay fraction
	2" 1.5" 1" 1/2" #4 #8		#200



**USCS Symbol** GP

**USCS Classification** POORLY GRADED GRAVEL

Tested By PC Date 7/2/10 Checked By KB Date 7-6-10  
page 1 of 2 DCN: CT-S42I DATE 2/14/03 REVISION: 2 C:\MSOFFICE\Excel\Print Q\ID56.XLS\Sheet1

**WASH SIEVE ANALYSIS**  
**AASHTO # 57 (ASTM C136-06)**

Client	WRScompass	Boring No.	#57 STONE
Client Reference	Grenada, MS Lagoon Closure	Depth(ft.)	NA
Project No.	2010-322-01	Sample No.	6/22/10
Lab ID	2010-322-01-01	Color	<b>BROWN</b>

Tare No.	X	Wt. of Dry Specimen (gm)	10390.00
Wt. Tare + DS.(Pre-Wash)	11382.00	Wt. of + #200 Specimen(gm)	10370.00
Wt. Tare + Dry, Washed specimen	11362.00	Wt. of - #200 Specimen(gm)	20.00
Wt Tare	992.00		
Wt. Dry, Washed specimen	10370.00		

Total Wt. Retained After Sieving    10370.39

% Difference Wt. Dry, Washed specimen vs Total Wt. Retained After Sieving    0.0

*Note: % Difference must not be more than 0.3*

Sieve	Sieve Opening (mm)	Wt. of Material Retained (gm.)	Percent Retained	Accumulated Percent Retained	Percent Finer
2"	50	0.00	0	0	100
1 1/2"	37.5	0.00	0	0	100
1"	25	1644.00	16	16	84
1/2"	12.5	5808.00	56	72	28
#4	4.75	2833.00	27	99	1
#8	2.36	66.42	1	100	0
#200	0.075	17.65	0	100	0
Pan	-	1.32	0	100	-

Tested By	PC	Date	7/2/10	Checked By	KB	Date	7-6-10
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page 2 of 2      DCN: CT-S421 DATE 2/14/03 REVISION: 2      C:\MSOFF\CE\Excel\PrintQ\ID56.XLS\Sheet1

**CARBONATE CONTENT**  
ASTM D 3042-03 (SOP S-55)

Client	WRScompass	Boring No.	#57 STONE
Client Reference	Grenada, MS Lagoon Closure	Depth(ft.)	NA
Project No.	2010-322-01	Sample No.	6/22/10
Lab ID	2010-322-01-01		
Visual Description	BROWN STONE		

**Washed and Dried Specimen (+ #200 Material)**

Tare No.	927
Wgt. Tare (gm)	102.40
Weight of Washed, Dry Specimen and Tare Before Acid Wash (gm)	716.70
Weight of Washed, Dry Specimen and Tare After Acid Wash (gm)	715.50
Weight of dry Specimen before acid wash (gm)	614.30
Weight of dry Specimen after acid wash (gm)	613.10

<b>Carbonate Content</b>	<b>0.2%</b>
--------------------------	-------------

**Note:** *Sampling for this test is done in accordance with Sampling Section of Test Method ASTM C 136 and D 3042 Sections 6.1.1 and 6.1.2*

Tested By **KBL** Date **7/6/10** Checked By **KB** Date **7-6-10**  
page 1 of 1 DCN: CT-S47 DATE :6/6/01 REVISION: 1 C:\MSOFFICE\Excel\Print\Q\ID104.XLS\Sheet1



## Appendix M: Certificates of Acceptance of Subgrade Surface Preparation

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***CERTIFICATE OF ACCEPTANCE OF SUBGRADE  
SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION***

PROJECT NAME: Arvin Meritor

LOCATION: Grenada, MS

Job #: 30012 Owner: \_\_\_\_\_

AREA ACCEPTED: Panels deployed P-01 to P-16 SQ FT. covered 67,981

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

RUAQ  
Signature  
PRINCIPAL ENGINEER  
Title  
BROWN AND CALOWELL  
Company

7-14-2010  
Date  
Dante J. J. J.  
QC  
G.S.I.

***CERTIFICATE OF ACCEPTANCE OF SUBGRADE  
SURFACE PREPARATION FOR GEOMEMBRANE INSTALLATION***

PROJECT NAME: Arvin Meritor

LOCATION: Grenada, MS

Job #: 30012 Owner: \_\_\_\_\_

AREA ACCEPTED: Panels deployed P-17 to P-23 SQ FT. covered 23,184 Total SQFT. overall 91,165

INSTALLER: The undersigned authorized representative of GSI certifies that he or she has visually inspected the subgrade surface of the area described above and has found the surface to be acceptable for installation of the Geomembrane materials.

GSI shall be responsible for the integrity of finished GCL and Geomembrane material until completion of the installation or demobilization from site.

This certification is based on observations of the subgrade surface conditions only. GSI has made no sub-terrain inspections or tests and makes no representations or warranties as to the conditions that may exist below the surface of the subgrade.

INSPECTOR:

CERTIFICATE APPROVED AND ACCEPTED BY:

W. A. R.  
Signature  
PRINCIPAL ENGINEER  
Title  
BROWN AND COLDWELL  
Company

7-15-2010  
Date  
Nate Orley  
QC  
G.S.I.

**WORK ACCEPTANCE REPORT**

PROJECT NAME: ARVIN MERITOR

LOCATION: GREENADA, MS

JOB #: 30012 OWNER: \_\_\_\_\_

TYPE OF WORK PERFORMED:

☒ Geomembrane Installation

☒ Geocomposite Installation

☐ Geotextile Installation / Field Sewing

☐ Geomembrane Repair

☐ OTHER

PLEASE EXPLAIN:

60 MIL HDPE TEXTURED INSTALLED  
91,165 SF  
200 GEOCOMPOSITE INSTALLED  
92,500 SF

Confirm by Survey

ACCEPTANCE:

All work as referenced above has been jointly inspected by GSI and the OWNER / CONTRACTOR or his representative and was found to be satisfactorily completed in accordance with the applicable plans and specifications.

GSI REPRESENTATIVE:

Dan Vort  
Signature

7-16-10  
Date

Supt  
Title

APPROVED AND ACCEPTED BY:

[Signature]  
Signature

7/16/10  
Date

PM / WRS COMPANY  
Title / Company



## **Appendix N: Geosynthetics Inventory and Panel Placement Summary**

---

Geomembrane Roll Inventory and Panel Placement Summary

Geocomposite Roll Inventory

## Geomembrane Roll Inventory and Panel Placement Summary

## Geomembrane Initial Roll Inventory

Project Name: Sludge Lagoon Closure Material Type: 60-mil Textured HDPE

Project Number: 138466 CQA Monitor: Rick Isaac

Roll Number	Lot Number	Product Code	Manufacturing Date	Width/Length	Confirmation Sample (Yes/No)	Date Shipped to Laboratory	Pass or Fail	Visual Inspection/Remarks
103178934	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition
103178935	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition
103178936	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition
103178937	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition
103178938	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	Yes	06-17-10	P	Material in good condition
103178939	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition
103178940	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition
103178942	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	Yes	06-17-10	P	Material in good condition
103178943	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition
103178945	10E1139	HDT-060AE-BBB-B-00	5/30/2010	22.5/520	No	---	---	Material in good condition

**Geomembrane Panel Placement Summary**

Project Name: Sludge Lagoon Closure

CQA Monitor

Rick Isaac

Project Number: 138466

Panel Number	Date	Roll Number	Material ID	Final Length (FT)	Width (FT)	Thickness (mils)	Overlap	Final Area, (SF)	Subbase Condition	Comments
P-01	7/14/10	8934	HDT-060AE-BBB-B-00	243	22	60	6"	5,346	good	
P-02	7/14/10	8934	HDT-060AE-BBB-B-00	200/243	22	60	6"	4,873	good	
P-03	7/14/10	8934	HDT-060AE-BBB-B-00	33/18	22	60	6"	561	good	
P-04	7/14/10	8937	HDT-060AE-BBB-B-00	120/167	22	60	6"	3,157	good	
P-05	7/14/10	8937	HDT-060AE-BBB-B-00	264	22	60	6"	5,808	good	
P-06	7/14/10	8937	HDT-060AE-BBB-B-00	95/36	22	60	6"	1,441	good	
P-07	7/14/10	8939	HDT-060AE-BBB-B-00	43/17	22	60	6"	480	good	
P-08	7/14/10	8937	HDT-060AE-BBB-B-00	36	8	60	6"	357	good	Irregular shaped panel
P-09	7/14/10	8939	HDT-060AE-BBB-B-00	265	22	60	6"	5,830	good	
P-10	7/14/10	8945	HDT-060AE-BBB-B-00	265	22	60	6"	5,830	good	
P-11	7/14/10	8945	HDT-060AE-BBB-B-00	264	22	60	6"	5,808	good	
P-12	7/14/10	8936	HDT-060AE-BBB-B-00	262	22	60	6"	5,764	good	
P-13	7/14/10	8936	HDT-060AE-BBB-B-00	260	22	60	6"	5,720	good	
P-14	7/14/10	8943	HDT-060AE-BBB-B-00	258	22	60	6"	5,676	good	
P-15	7/14/10	8943	HDT-060AE-BBB-B-00	258	22	60	6"	5,676	good	



**Geomembrane Panel Placement Summary**

Project Name: Sludge Lagoon Closure

CQA Monitor Rick Isaac

Project Number: 138466

Panel Number	Date	Roll Number	Material ID	Final Length (FT)	Width (FT)	Thickness (mils)	Overlap	Final Area, (SF)	Subbase Condition	Comments
P-16	7/14/10	8940	HDT-060AE-BBB-B-00	257	22	60	6"	5,654	good	
P-17	7/15/10	8940	HDT-060AE-BBB-B-00	254	22	60	6"	5,290	good	
P-18	7/15/10	8938	HDT-060AE-BBB-B-00	243	22	60	6"	5,149	good	
P-19	7/15/10	8938	HDT-060AE-BBB-B-00	230	22	60	6"	4,670	good	
P-20	7/15/10	8935	HDT-060AE-BBB-B-00	210	22	60	6"	4,282	good	
P-21	7/15/10	8935	HDT-060AE-BBB-B-00	173	22	60	6"	2,872	good	
P-22	7/15/10	8935	HDT-060AE-BBB-B-00	30	15	60	6"	345	good	Irregular shaped panel
P-23	7/15/10	8935	HDT-060AE-BBB-B-00	67	15	60	6"	576	good	Irregular shaped panel

## Geocomposite Roll Inventory

## Geocomposite Initial Roll Inventory

Project Name: Sludge Lagoon Closure Material Type: Double-Sided Geocomposite

Project Number: 138466 CQA Monitor: Rick Isaac

Roll Number	Lot Number	Product Code	Manufacturing Date	Width/Length	Confirmation Sample (Yes/No)	Date Shipped to Laboratory	Pass or Fail	Visual Inspection/Remarks
131344093	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344094	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344095	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344096	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344097	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344098	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344099	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344100	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	Yes	06-17-10	P	Material in good condition
131344101	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344102	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344103	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344104	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344105	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344106	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344107	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	Yes	06-17-10	P	Material in good condition

**Geocomposite Initial Roll Inventory**Project Name: Sludge Lagoon ClosureMaterial Type: Double-Sided GeocompositeProject Number: 138466CQA Monitor: Rick Isaac

Roll Number	Lot Number	Product Code	Manufacturing Date	Width/Length	Confirmation Sample (Yes/No)	Date Shipped to Laboratory	Pass or Fail	Visual Inspection/Remarks
131344108	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344109	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344110	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344111	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344114	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344115	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344116	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344117	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344118	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344119	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344120	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344121	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344122	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344123	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition
131344124	CB20043003	FS2-200E-06-06-F-00	6/3/2010	15/270	No	---	---	Material in good condition



## Appendix O: Clay Soil Laboratory and Field QA/QC Test Results

---

Laboratory QC Test Results

Field Compaction Test Results

## Laboratory QC Test Results

# Clay Soil QC Laboratory Test Results

Clay Soil Material	Sieve Analysis							Atterberg Limits			USCS Classification	Permeability
	#10	#40	#60	#200	#270	% Silt	% Clay	LL	PL	PI		
Project Criteria	100% ≤ 2-inch, 90% ≤ ¾-inch, 50% ≤ No. 200 sieve											
Sample No. 1	100	99	91	33	26	30	3	32	17	15	CL	≤ 1 x 10 <sup>-05</sup> cm/sec
Sample No. 2	100	99	91	33	26	30	3	33	17	16	CL	1.06 x 10 <sup>-07</sup>
												2.23 x 10 <sup>-06</sup>

## NOTES:

cm/sec - centimeters per second

% - percent

# - Number

WILLIS ENGINEERING INC.  
P.O.BOX 160 133 SOUTH MOUND STREET  
GRENADA, MISSISSIPPI 38902-0160

TELEPHONE (662) 226-7415

FAX: (662) 226-7415

SOIL ANALYSIS REPORT

SUBMITTED BY: WILLIS ENGINEERING INC. PROJECT: GRENADA STAMPING  
REPORTED TO: BROWN & CALDWELL PROJECT NO.:  
ENGINEER: COUNTY: GRENADA  
PRODUCER: SAMPLED BY: OWENS

TEST RESULTS

DATE	4/16/09	4/16/09							
SAMPLE NO.	1	2							
STATION NO.									
DEPTH	PIT	PIT							

PHYSICAL CHARACTERISTICS

LIQUID LIMIT	32	33							
PLASTIC LIMIT	17	17							
PLASTICITY INDEX	15	16							
SHRINKAGE LIMIT	25	25							
SHRINKAGE RATIO	1.6	1.6							
CENTRIFUGE MOISTURE									
FIELD MOISTURE									
VOLUME CHANGE	31	31							

% PASSING #10 SIEVE	100	100							
% PASSING #40 SIEVE	99	99							
% PASSING THE #60 SIEVE	91	91							
% PASSING THE #200 SIEVE	33	33							
% PASSING THE #270 SIEVE	26	26							
% SILT	30	30							
% CLAY	3	3							
GROUP	A-6	A-6							
U.S.C.	CL	CL							
ESTIMATED CBR	6	6							

SAMPLE LOCATION

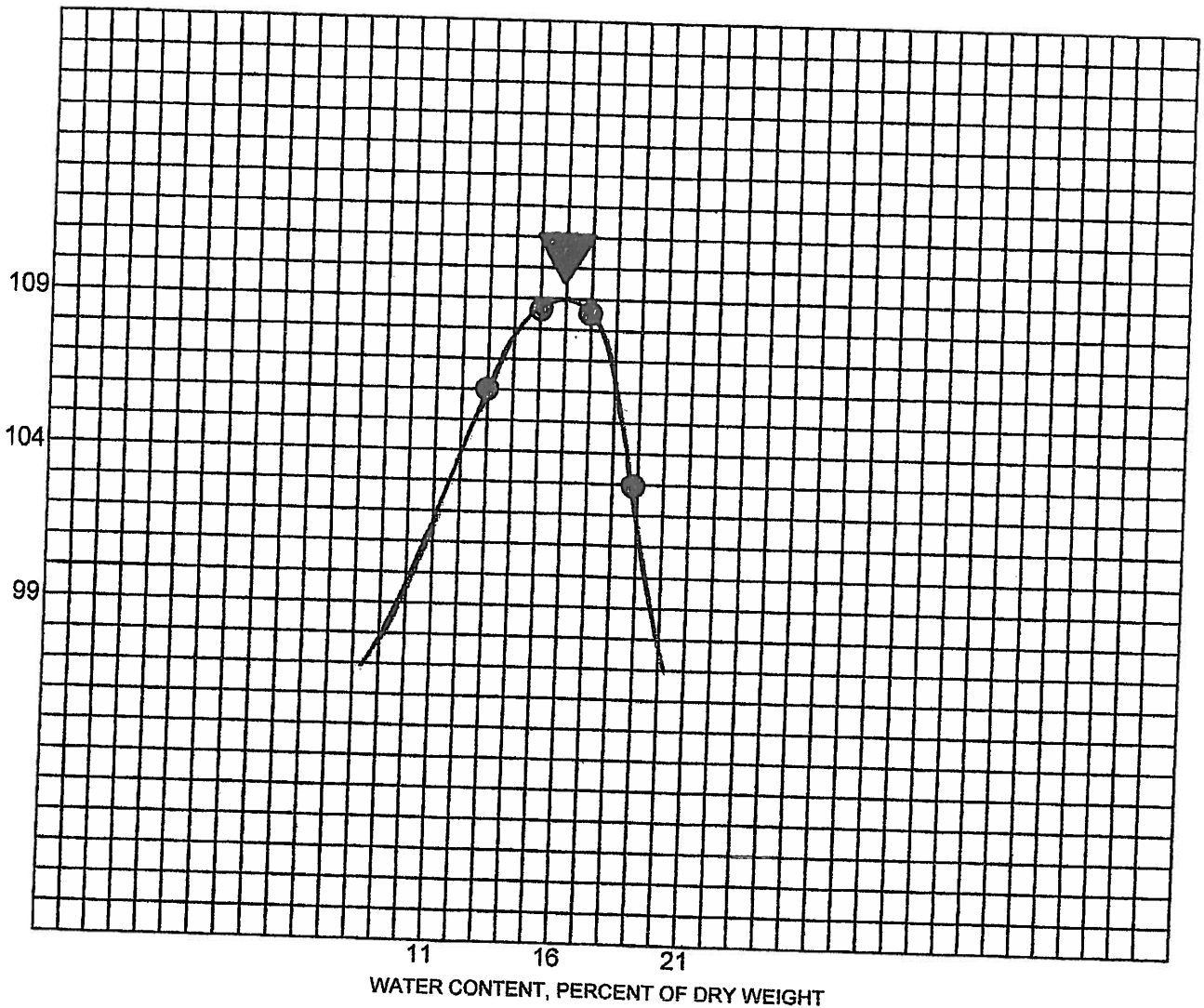
#1  
#2

THIS MATERIAL DOES (NOT) MEET SPECIFICATION FOR

*Justin Owens*



WILLIS ENGINEERING INC.  
P. O. BOX 160  
GRENADA, MISSISSIPPI 38902



STANDARD D-698		COMPACTION TEST	
25	BLOWS PER EACH OF	3	LAYERS, WITH
12	INCH DROP:	6	INCH DIAMETER MOLD.
		5.5	LB. HAMMER AND

SAMPLE DISCRIPTION	REDISH YELLOW SANDY CLAY
NATURAL WATER CONTENT, PERCENT	
OPTIMUM WATER CONTENT, PERCENT	16.0
MAXIMUM DRY DENSITY, lbs./ cu. ft.	109.0

ENTER POINT SELECTED FROM ABOVE CHART FOR (-) 1/2 MATERIAL	STANDARD DENSITY	% MOISTURE
(+) 1/2" MATERIAL	% OF + 1/2" MATERIAL:	BULK SPECIFIC GRAVITY OF + 1/2" MATERIAL:
RESULTS OF TOTAL SAMPLE	STANDARD DENSITY:	MOISTURE CONTENT:

PROJECT: GRENADA STAMPING (BROWN & CALDWELL)	<i>Justin Davis</i>
GRENADA COUNTY	
AREA	

**Fax (662) 294-3227**

[illegible]

## Field Compaction Test Results

WILLIS ENGINEERING INC.  
P.O.BOX 160 • 133 SOUTH MOUND STREET  
GRENADA, MS. 38902

TELEPHONE (601) 226-7415

FAX (601) 2261649

NUCLEAR MOISTURE-DENSITY REPORT

CLIENT: BROWN & CALDWELL

PROJECT NO.: GRENADA STAMPING

PROJECT:

TECHNICIAN: OWENS

CONTRACTOR: COMPASS

MATERIAL: BORROW TOWNS PIT

PROJECT ENGR: RICHARD ISAAC

SOIL TYPE:

REFERENCE:

TREATMENT: NONE

	1	2	3	4	5	6
1. TEST #	1	2	3	4	5	6
2. DATE:	7/1/10	7/1/10	7/1/10	7/1/10	7/1/10	7/1/10
3. LOCATION	L1-2	L1-1	L1-3	L1-4	L1-5	L1-4
4. LOCATION FROM CL						
5. DEPTH MEASURED	6"	6"	6"	6"	6"	6"
6. WET DENSITY						
7. DRY DENSITY						
8. MOISTURE CONTENT %	18.4	14.6	15.6	15.5	16.0	16.7
9. PROCTOR OR STANDARD	109.0	109.0	109.0	109.0	109.0	109.0
% OF STANDARD	95.8	96.6	102.0	95.0	95.3	99.6
11. SPECIFIED % OF STANDARD	95.0	95.0	95.0	95.0	95.0	95.0

REMARKS:

PERSON NOTIFIED

NOTICE: DEEP SOUTH TESTING LABS. LLC CONSIDERS THE DATA AND INFORMATION IN THIS REPORT TO BE PROPRIETARY. THIS INFORMATION IS INTENDED ONLY FOR THE USE OF THE RECIPIENT HEREIN NAMED. TEST RESULTS HEREIN PRESENTED RELATE ONLY TO THOSE ITEMS TESTED. THIS DOCUMENT AND ANY INFORMATION CONTAINED HEREIN SHALL NOT BE DISCLOSED AND SHALL NOT BE DUPLICATED OR USED IN PART OR IN WHOLE FOR ANY PURPOSE OTHER THAN TO EVALUATE TEST RESULTS WITHOUT WRITTEN APPROVAL FROM DEEP SOUTH TESTING LABORATORIES, INC.

SOIL TYPE	OPTIMUM MOISTURE (%)	PROCTOR DENSITY	REQUIRED MOISTURE (%)	REQUIRED DENSITY % OF PROCTOR
REDISH YELLOW SANDY CLAY	16	109		95



WILLIS ENGINEERING INC.



# NUCLEAR MOISTURE-DENSITY REPORT

**WILLIS ENGINEERING INC.**  
**P.O.BOX 160 • 133 SOUTH MOUND STREET**  
**GRENADA, MS. 38902**

TELEPHONE (601) 226-7415

FAX (601) 2261649

CLIENT: **BROWN & CALDWELL**

PROJECT NO.: **GRENADA STAMPING**

PROJECT:

TECHNICIAN: **OWENS**

CONTRACTOR: **COMPASS**

MATERIAL: **BORROW TOWNS PIT**

PROJECT ENGR: **RICHARD ISAAC**

SOIL TYPE:

REFERENCE:

TREATMENT: **NONE**

	7	8	9	10	11	12
1. TEST #	7/2/10	7/2/10	7/2/10	7/2/10	7/2/10	7/2/10
2. DATE:	L1-7	L1-8	L2-1	L2-2	L2-3	L2-4
3. LOCATION						
4. LOCATION FROM CL	6"	6"	6"	6"	6"	6"
5. DEPTH MEASURED						
6. WET DENSITY						
7. DRY DENSITY						
8. MOISTURE CONTENT %	109.0	109.0	109.0	109.0	109.0	109.0
9. PROCTOR OR STANDARD	99.2	96.3	99.3	96.9	98	96.1
10. % OF STANDARD	95.0	95.0	95.0	95.0	95.0	95.0
11. SPECIFIED % OF STANDARD						

## REMARKS:

## PRERSON NOTIFIED

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SOIL TYPE	OPTIMUM MOISTURE (%)	PROCTOR DENSITY	REQUIRED MOISTURE (%)	REQUIRED DENSITY % OF PROCTOR
REDISH YELLOW SANDY CLAY	16	109		95



WILLIS ENGINEERING INC.

# NUCLEAR MOISTURE-DENSITY REPORT

WILLIS ENGINEERING INC.  
P.O.BOX 160 • 133 SOUTH MOUND STREET  
GRENADA, MS. 38902

TELEPHONE (601) 226-7415

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CLIENT: BROWN & CALDWELL

PROJECT NO.: GRENADA STAMPING

PROJECT:

TECHNICIAN: OWENS

CONTRACTOR: COMPASS

MATERIAL: BORROW TOWNS PIT

PROJECT ENGR: RICHARD ISAAC

SOIL TYPE:

REFERENCE:

TREATMENT: NONE

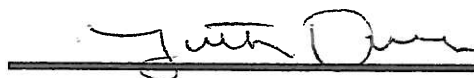
	13	14	15	16	17	18
1. TEST #	13	14	15	16	17	18
2. DATE:	7/2/10	7/2/10	7/2/10	7/2/10	7/2/10	7/2/10
3. LOCATION	L2-7	L2-8	L2-9	L3-1	L2-3	L2-6
4. LOCATION FROM CL						
5. DEPTH MEASURED	6"	6"	6"	6"	6"	6"
6. WET DENSITY						
7. DRY DENSITY						
8. MOISTURE CONTENT %	17.0	19.4	19.0	18.1	18.9	19.2
9. PROCTOR OR STANDARD	109.0	109.0	109.0	109.0	109.0	109.0
10. % OF STANDARD	96.9	98.9	96.1	98.2	98.3	95.2
11. SPECIFIED % OF STANDARD	95.0	95.0	95.0	95.0	95.0	95.0

## REMARKS:

## PRERSON NOTIFIED

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SOIL TYPE	OPTIMUM MOISTURE (%)	PROCTOR DENSITY	REQUIRED MOISTURE (%)	REQUIRED DENSITY % OF PROCTOR
REDISH YELLOW SANDY CLAY	16	109		95



WILLIS ENGINEERING INC.

# NUCLEAR MOISTURE-DENSITY REPORT

**WILLIS ENGINEERING INC.**  
**P.O.BOX 160 • 133 SOUTH MOUND STREET**  
**GRENADA, MS. 38902**

TELEPHONE (601) 226-7415

FAX (601) 2261649

CLIENT: **BROWN & CALDWELL**

PROJECT NO.: **GRENADA STAMPING**

PROJECT:

TECHNICIAN: **OWENS**

CONTRACTOR: **COMPASS**

MATERIAL: **BORROW TOWNS PIT**

PROJECT ENGR: **RICHARD ISAAC**

SOIL TYPE:

REFERENCE:

TREATMENT: **NONE**

1. TEST #	19	20	21	22	23	24
2. DATE:	7/9/10	7/9/10	7/9/10	7/9/10	7/9/10	7/9/10
3. LOCATION	L3-3	L3-4	L3-5	L3-6	L3-7	L3-8
4. LOCATION FROM CL						
5. DEPTH MEASURED	6"	6"	6"	6"	6"	6"
6. WET DENSITY						
7. DRY DENSITY						
8. MOISTURE CONTENT %	19.0	14.4	17.5	14.6	14.8	19.2
9. PROCTOR OR STANDARD	109.0	109.0	109.0	109.0	109.0	109.0
% OF STANDARD	98.4	101.2	99.8	100.9	100.8	95.3
11. SPECIFIED % OF STANDARD	95.0	95.0	95.0	95.0	95.0	95.0

## REMARKS:

## PRERSON NOTIFIED

NOTICE: DEEP SOUTH TESTING LABS. LLC CONSIDERS THE DATA AND INFORMATION IN THIS REPORT TO BE PROPRIETARY. THIS INFORMATION IS INTENDED ONLY FOR THE USE OF THE RECIPIENT HEREIN NAMED: TEST RESULTS HEREIN PRESENTED RELATE ONLY TO THOSE ITEMS TESTED. THIS DOCUMENT AND ANY INFORMATION CONTAINED HEREIN SHALL NOT BE DISCLOSED AND SHALL NOT BE DUPLICATED OR USED IN PART OR IN WHOLE FOR ANY PURPOSE OTHER THAN TO EVALUATE TEST RESULTS WITHOUT WRITTEN APPROVAL FROM DEEP SOUTH TESTING LABORATORIES, INC.

SOIL TYPE	OPTIMUM MOISTURE (%)	PROCTOR DENSITY	REQUIRED MOISTURE (%)	REQUIRED DENSITY % OF PROCTOR
REDISH YELLOW SANDY CLAY	16	109		95



WILLIS ENGINEERING INC.

**WILLIS ENGINEERING INC.**  
**P.O.BOX 160 • 133 SOUTH MOUND STREET**  
**GRENADA, MS. 38902**

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**NUCLEAR MOISTURE-DENSITY REPORT**

**CLIENT: BROWN & CALDWELL**

**PROJECT NO.: GRENADA STAMPING**

**PROJECT:**

**TECHNICIAN: OWENS**

**CONTRACTOR: COMPASS**

**MATERIAL: BORROW TOWNS PIT**

**PROJECT ENGR: RICHARD ISAAC**

**SOIL TYPE:**

**REFERENCE:**

**TREATMENT: NONE**


1. TEST #	25					
2. DATE	7/9/10					
3. LOCATION	L3-2					
4. LOCATION FROM CL						
5. DEPTH MEASURED	6"					
6. WET DENSITY						
7. DRY DENSITY						
8. MOISTURE CONTENT %	16.9					
9. PROCTOR OR STANDARD	109.0					
10. % OF STANDARD	98.4					
11. SPECIFIED % OF STANDARD	95.0					

**REMARKS:**

**PERSON NOTIFIED**

NOTICE: DEEP SOUTH TESTING LABS. LLC CONSIDERS THE DATA AND INFORMATION IN THIS REPORT TO BE PROPRIETARY. THIS INFORMATION IS INTENDED ONLY FOR THE USE OF THE RECIPIENT HEREIN NAMED: TEST RESULTS HEREIN PRESENTED RELATE ONLY TO THOSE ITEMS TESTED. THIS DOCUMENT AND ANY INFORMATION CONTAINED HEREIN SHALL NOT BE DISCLOSED AND SHALL NOT BE DUPLICATED OR USED IN PART OR IN WHOLE FOR ANY PURPOSE OTHER THAN TO EVALUATE TEST RESULTS WITHOUT WRITTEN APPROVAL FROM DEEP SOUTH TESTING LABORATORIES, INC.

SOIL TYPE	OPTIMUM MOISTURE (%)	PROCTOR DENSITY	REQUIRED MOISTURE (%)	REQUIRED DENSITY % OF PROCTOR
REDISH YELLOW SANDY CLAY	16	109		95



WILLIS ENGINEERING INC.



## **Appendix P: Geosynthetics Laboratory and Field QA/QC Test Results**

---

Geomembrane QC Laboratory Test Results

Geocomposite QC Laboratory Test Results

Geomembrane QA Laboratory Test Results

Geocomposite QA Laboratory Test Results

Trial Weld Results

Geomembrane Panel Seaming Summary

Field Non-Destructive Seam Test Results

Field Destructive Seam Test Results

Laboratory Destructive Seam Test Results

Geomembrane Repair Summary

16 oz Non-Woven Geotextile QA Laboratory Test Results

## Geomembrane QC Laboratory Test Results

60-mil Textured HDPE Geomembrane QC Laboratory Test Results

Roll Number	Thickness (mil)		Sheet Density (g/cm³)	Tensile Properties										Tear Resistance (lbs)	Puncture Resistance (lbs)	Carbon Black Content (%)	Carbon Black Dispersion (%)	Pass/Fail
	AVE.	MIN.		Yield Strength (ppi)		Break Strength (ppi)		Yield Elongation (%)		Break Elongation (%)								
				MD	TD	MD	TD	MD	TD	MD	TD							
												MD	TD					
Project Criteria	57	54	0.940	126		120		12		100		42		90	2.0 – 3.0	9 in Cat 1 or 2		
103178934	61	56	0.947	159	170	223	200	18	15	543	524	61	61	157	2.6	10	Pass	
103178935	61	57	0.947	159	170	223	200	18	15	543	524	61	61	157	2.6	10	Pass	
103178936	61	57	0.947	159	170	223	200	18	15	543	524	61	61	157	2.6	10	Pass	
103178937	60	55	0.946	172	176	215	192	16	15	526	499	60	60	155	2.5	10	Pass	
103178938	60	55	0.946	172	176	215	192	16	15	526	499	60	60	155	2.5	10	Pass	
103178939	60	55	0.946	172	176	215	192	16	15	526	499	60	60	155	2.5	10	Pass	
103178940	60	56	0.946	172	176	215	192	16	15	526	499	60	60	155	2.5	10	Pass	
103178942	61	56	0.945	157	160	225	187	17	16	607	520	57	62	156	2.45	10	Pass	
103178943	61	54	0.945	157	160	225	187	17	16	607	520	57	62	156	2.45	10	Pass	
103178945	61	55	0.945	157	160	225	187	17	16	607	520	57	62	156	2.45	10	Pass	
NOTES:																		

NOTES:

AVE. - Average.

MIN. - Minimum.

g/cm<sup>3</sup> - grams per cubic centimeter.

ppi - pounds per inch.

MD - Machine direction.

TD - Transverse direction.

lbs - pounds.

% - percent.



Lining Technology, Inc

## Roll Test Data Report

Bill of Lading: 45049

Sales Order No.  
61332

Project Number

Customer Name  
Geo-Synthetics, LLCProject Location  
Grenada, MSProduct Name  
HDT-060AB-BBB-B-00Report Date  
6/14/2010

Roll No.	ASTM D 5994				ASTM D 638, Type IV / D6683												ASTM D 1994				ASTM D 4833				ASTM D 1505				ASTM D 4018/4833				ASTM D 5596				GRI GM 12				*Modified
	Average Thickness (mils)		Minimum Thickness (mils)		TD Strength @ Yield (psi)		TD Strength @ Break (psi)		TD Elongation @ Yield (%)		TD Elongation @ Break (%)		TD Elongation @ Yield (%)		TD Elongation @ Break (%)		TD Tear Resistance (lbs)		TD Tear Resistance (lbs)		Puncture Resistance (lbs)		Puncture Resistance (lbs)		Density (g/cc)		Density (g/cc)		Carbon Black Content (%)		Carbon Black Dispersivity		Carbon Black Dispersivity		Side A (mils)		Side B (mils)				
	(mils)	(mils)	(psi)	(psi)	(psi)	(psi)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(lbs)	(lbs)	(lbs)	(lbs)	(g/cc)	(g/cc)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)	(%)					
103178934	61	56	170	159	200	223	15	18	524	543	61	61	157	157	157	0.947	0.947	2.60	2.60	10	20	22	22																		
103178935	61	57	170	159	200	223	15	18	524	543	61	61	157	157	157	0.947	0.947	2.60	2.60	10	20	22	22																		
103178936	61	57	170	159	200	223	15	18	524	543	61	61	157	157	157	0.947	0.947	2.60	2.60	10	20	22	22																		
103178937	60	55	176	172	192	215	15	16	499	526	60	60	155	155	155	0.946	0.946	2.50	2.50	10	22	21	20																		
103178939	60	55	176	172	192	215	15	16	499	526	60	60	155	155	155	0.946	0.946	2.50	2.50	10	21	20	20																		
103178939	60	55	176	172	192	215	15	16	499	526	60	60	155	155	155	0.946	0.946	2.50	2.50	10	21	20	20																		
103178940	60	56	176	172	192	215	15	16	499	526	60	60	155	155	155	0.946	0.946	2.50	2.50	10	21	20	20																		
103178942	61	56	160	157	187	225	16	17	520	607	62	57	156	156	156	0.945	0.945	2.45	2.45	10	21	21	20																		
103178943	61	54	160	157	187	225	16	17	520	607	62	57	156	156	156	0.945	0.945	2.45	2.45	10	21	21	20																		
103178945	61	55	160	157	187	225	16	17	520	607	62	57	156	156	156	0.945	0.945	2.45	2.45	10	21	21	20																		

Approved By:

This test report shall not be reproduced, except in full, without written approval of the laboratory.

Page: 1 of 1

GSE-8.2.4-029 Rev -- 03/05

19103 Gundle Road - Houston, Texas 77073





Lining Technology, Inc.

## Weld Lot Data Report

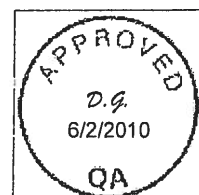
### LOT IDENTIFICATION

<i>Rod Lot Number</i>	121004087
<i>Product Name</i>	HDROD5MM
<i>Production Date</i>	6/2/2010

### RESIN INFORMATION

<i>Resin Lot</i>	8100313
<i>Resin Type</i>	K306
<i>Resin Vendor</i>	Chevron Phillips

<i>Physical Property</i>	<i>Test Method</i>	<i>Test Results</i>
Carbon Content, %	ASTM D4218	2.43
Thickness, mil	ASTM D374*	194



## Geocomposite QC Laboratory Test Results

Geocomposite QC Laboratory Test Results - Geotextile

Roll Number	Unit Weight (oz/yd <sup>2</sup> )	Grab Strength (lbs)		Grab Elongation (%)		Trapezoidal Tear Strength (lbs)		Puncture Resistance (lbs)	Apparent Opening Size (mm)	Permittivity (Sec <sup>-1</sup> )	Pass/Fail
		MD	TD	MD	TD	MD	TD				
Project Criteria	6	160		50		65		90	70 sieve	1.5	
130354364	6.9	198	200	93	144	92	110	106	0.212	1.8	Pass
130354446	6.7	175	179	91	152	92	86	111	0.212	1.8	Pass
130354450	6.3	184	203	89	135	94	81	105	0.212	1.8	Pass
130354482	6.5	210	173	89	133	100	130	111	0.212	2.2	Pass
130356513	6.3	220	212	94	133	81	112	108	0.212	1.8	Pass
130357144	6.4	213	188	90	156	103	117	90	0.212	1.9	Pass
130357203	6.7	227	185	79	146	104	112	113	0.212	2.0	Pass
130357204	6.5	227	205	89	142	111	133	109	0.212	2.0	Pass
130358902	6.3	222	232	85	143	100	141	98	0.211	2.2	Pass
130358908	6.2	216	236	99	141	112	144	106	0.211	2.2	Pass
130358911	6.2	216	236	99	141	112	144	106	0.211	2.2	Pass
130359080	6.5	234	234	90	121	83	101	222	0.212	1.8	Pass
130359086	6.7	227	245	94	125	97	132	108	0.212	1.8	Pass
130359098	6.5	206	253	97	120	94	138	113	0.212	2.3	Pass

NOTES:

oz/yd<sup>2</sup> - ounces per square yard.

MD - Machine direction.

TD - Transverse direction.

lbs - pounds.

% - percent.

mm - millimeters.

Geocomposite QC Laboratory Test Results - Geonet

Roll Number	Thickness (mil)	Density (g/cc)	Tensile Strength (ppi)	Carbon Black Content (%)	Pass/Fail
Project Criteria	200	0.940	45	1.5 - 3.0	
131344093	232	0.955	58	2.3	Pass
131344094	233	0.961	62	2.4	Pass
131344095	233	0.961	62	2.4	Pass
131344096	233	0.961	62	2.4	Pass
131344097	233	0.961	62	2.4	Pass
131344098	233	0.961	62	2.4	Pass
131344099	233	0.961	62	2.4	Pass
131344100	233	0.961	62	2.4	Pass
131344101	233	0.961	62	2.4	Pass
131344102	233	0.961	62	2.4	Pass
131344103	233	0.961	62	2.4	Pass
131344104	233	0.961	62	2.4	Pass
131344105	233	0.961	62	2.4	Pass
131344106	230	0.961	60	2.4	Pass
131344107	230	0.961	60	2.4	Pass
131344108	230	0.961	60	2.5	Pass
131344109	230	0.961	60	2.5	Pass
131344110	230	0.961	60	2.5	Pass
131344111	230	0.961	60	2.5	Pass

NOTES:

g/cc - grams per cubic centimeter.

ppi - pounds per inch.

% - percent.



Geocomposite QC Laboratory Test Results - Geocomposite

Roll Number	Pressure (psf)	Component	Seat Time (min)	Boundary	Transmissivity		Pass/Fail
					m <sup>2</sup> /sec	gal/min/ft	
Project Criteria			15		1.0 x 10 <sup>-04</sup>	0.48	
131344093	400	Composite	15	Soil/Geocomposite/Geomembrane	1.66 x 10 <sup>-03</sup>	8.21	
	10000	Composite	15	SS Plates	6.2 x 10 <sup>-04</sup>	3.00	Pass
	10000	Net	15	SS Plates	2.02 x 10 <sup>-03</sup>	9.76	

NOTES:

psf - pounds per square foot.

min - minutes.

m<sup>2</sup>/sec -square meters per second.

gal/min/ft - gallons per minute per foot

SS - Stainless Steel.

# GSE Roll Allocation

**Order** 61332  
**Customer** Geo-Synthetics, LLC  
**Site** ArvinMeritor Stamping Plant

<b>Roll#</b>	<b>Resin Lot</b>	<b>Product Code</b>	<b>Description</b>	<b>Mfg. Date</b>	<b>Length</b>
131344093	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344094	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344095	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344096	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344097	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344098	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344099	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344100	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344101	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344102	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344103	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344104	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344105	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344106	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344107	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344108	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344109	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344110	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344111	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344114	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344115	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344116	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344117	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344118	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344119	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344120	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344121	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344122	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344123	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270
131344124	CB20043003	FS2-200E-06-06-F-00	FS2-200E-06-06-F-00	6/3/2010	270

**Customer** Geo-Synthetics, LLC  
**Location** Grenada, MS

**Job Name** ArvinMeritor Stamping Plant  
**Order** 61332

<b>Roll_No</b>	<b>Product</b>	<b>Resin Lot</b>	<b>Top Geo</b>	<b>Bottom Geo</b>
131344093	FS2-200E-06-06-F-00	CB20043003	130354450	130354446
131344094	FS2-200E-06-06-F-00	CB20043003	130357144	130359080
131344095	FS2-200E-06-06-F-00	CB20043003	130357144	130359080
131344096	FS2-200E-06-06-F-00	CB20043003	130357144	130359080
131344097	FS2-200E-06-06-F-00	CB20043003	130357144	130359080
131344098	FS2-200E-06-06-F-00	CB20043003	130357144	130359080
131344099	FS2-200E-06-06-F-00	CB20043003	130357144	130359080
131344100	FS2-200E-06-06-F-00	CB20043003	130354364	130354483
131344101	FS2-200E-06-06-F-00	CB20043003	130354364	130354483
131344102	FS2-200E-06-06-F-00	CB20043003	130354364	130354483
131344103	FS2-200E-06-06-F-00	CB20043003	130354364	130354483
131344104	FS2-200E-06-06-F-00	CB20043003	130354364	130354483
131344105	FS2-200E-06-06-F-00	CB20043003	130358911	130358908
131344106	FS2-200E-06-06-F-00	CB20043003	130358911	130358908
131344107	FS2-200E-06-06-F-00	CB20043003	130358911	130358908
131344108	FS2-200E-06-06-F-00	CB20043003	130358911	130358908
131344109	FS2-200E-06-06-F-00	CB20043003	130358911	130358908
131344110	FS2-200E-06-06-F-00	CB20043003	130358902	130358908
131344111	FS2-200E-06-06-F-00	CB20043003	130358902	130357203
131344114	FS2-200E-06-06-F-00	CB20043003	130358902	130357203
131344115	FS2-200E-06-06-F-00	CB20043003	130358902	130357203
131344116	FS2-200E-06-06-F-00	CB20043003	130357204	130356513
131344117	FS2-200E-06-06-F-00	CB20043003	130357204	130356513
131344118	FS2-200E-06-06-F-00	CB20043003	130357204	130356513
131344119	FS2-200E-06-06-F-00	CB20043003	130357204	130356513
131344120	FS2-200E-06-06-F-00	CB20043003	130357204	130356513
131344121	FS2-200E-06-06-F-00	CB20043003	130357204	130356513
131344122	FS2-200E-06-06-F-00	CB20043003	130359098	130359086
131344123	FS2-200E-06-06-F-00	CB20043003	130359098	130359086
131344124	FS2-200E-06-06-F-00	CB20043003	130359098	130359086

**Report Date**  
6/7/2010



**Product Name**  
FBR-060E-EBC-E-00

**Project Location**  
Grenada, MS

**Customer Name**  
Geo-Synthetics, LLC

**Project Number**

**Sales Order No.**

61332

Roll No.	ASTM D 4491		ASTM D 4751		ASTM D 4833		ASTM D 4533		ASTM D 4632		ASTM D 5261	
	Average Sample	Permittivity (Sec-1)	Apparent	Resistance	Trap Tear	Strength	Trap Tear	Strength	Grab Elongation	Grab Strength	Grab Strength	Mass per Unit Area (oz./yd <sup>2</sup> )
	(gallon/min/ft <sup>2</sup> )		(mm)	(lbs)	(lbs)	(lbs)	(lbs)	(lbs)	(%)	(%)	(lbs)	every 4th
130354364	130	1.80	0.212	106	110	92	144	93	200	198	6.9	
130354446	134	1.80	0.212	111	86	92	152	91	179	175	6.7	
130354450	134	1.80	0.212	105	81	94	135	89	203	184	6.3	
130354482	162	2.20	0.212	111	130	100	133	89	173	210	6.5	
130356513	136	1.80	0.212	108	112	81	133	94	212	220	6.3	
130357144	139	1.90	0.212	90	117	103	156	90	188	213	6.4	
130357203	149	2.00	0.212	113	112	104	146	79	185	227	6.7	
130357204	149	2.00	0.212	109	133	111	142	89	205	227	6.5	
130358902	163	2.20	0.211	98	141	100	143	85	232	222	6.3	
130358908	163	2.20	0.211	106	144	112	141	99	236	216	6.2	
130358911	163	2.20	0.211	106	144	112	141	99	236	216	6.2	
130359080	132	1.80	0.212	111	101	83	121	90	234	234	6.5	
130359086	132	1.80	0.212	108	132	97	125	94	245	227	6.7	
130359098	170	2.30	0.212	113	138	94	120	97	253	206	6.5	

Laboratory Manager:



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Kingstree Lab - US





Lining Technology, Inc.

# Roll Test Data Report



Report Date  
6/7/2010

Product Name  
FS2-200E-06-06-F-00

Project Location  
Grenada, MS

Customer Name  
Geo-Synthetics, LLC

Project Number

Sales Order No.

61332

Roll No.	ASTM D 5199		ASTM D 7179 / D 5035		ASTM D 4214 / D 1603 *		TM D 1805 / D		GRI GC7* / ASTM D791S		Peel Strength		Peel Strength	
	Average	Thickness (mils)	Gross Tensile	Strength (psi)	Carbon Black Content (%)	Density (g/cc)	every 14th	every 14th	every 14th	every 14th	Side A - Average (psi)	Side B - Average (psi)	Side A - Average (psi)	Side B - Average (psi)
131344093	232		58		2.3	0.955		3.11		2.89				
131344094	233		62		2.4	0.961		3.09		2.16				
131344095	233		62		2.4	0.961		3.09		2.16				
131344096	233		62		2.4	0.961		3.09		2.16				
131344097	233		62		2.4	0.961		3.09		2.16				
131344098	233		62		2.4	0.961		3.09		2.16				
131344099	233		62		2.4	0.961		3.09		2.16				
131344100	233		62		2.4	0.961		3.09		2.16				
131344101	233		62		2.4	0.961		3.09		2.16				
131344102	233		62		2.4	0.961		3.09		2.16				
131344103	233		62		2.4	0.961		3.09		2.16				
131344104	233		62		2.4	0.961		3.09		2.16				
131344105	233		62		2.4	0.961		3.09		2.16				
131344106	230		60		2.4	0.961		2.98		2.08				
131344107	230		60		2.4	0.961		2.98		2.08				
131344108	230		60		2.5	0.961		2.98		2.08				
131344109	230		60		2.5	0.961		2.98		2.08				
131344110	230		60		2.5	0.961		2.98		2.08				
131344111	230		60		2.5	0.961		2.98		2.08				
131344114	230		60		2.5	0.961		2.98		2.08				
131344115	230		60		2.5	0.961		2.98		2.08				
131344116	230		60		2.5	0.961		2.98		2.08				
131344117	230		60		2.5	0.961		2.98		2.08				
131344118	230		61		2.3	0.961		2.55		2.52				
131344119	230		61		2.3	0.961		2.55		2.52				
131344120	230		61		2.3	0.961		2.55		2.52				
131344121	230		61		2.3	0.961		2.55		2.52				
131344122	230		61		2.3	0.961		2.55		2.52				
131344123	230		61		2.3	0.961		2.55		2.52				
131344124	230		61		2.3	0.961		2.55		2.52				

Laboratory Manager: *Joe Allen*

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**Lining Technology, Inc.**

# Transmissivity Report

**ASTM D4716**

**Roll No. 131344093**

## ROLL IDENTIFICATION

**Roll Number** 131344093  
**Product Name** FS2-200E-06-06-F-00  
**Production Date** 6/3/2010  
**Resin Lot #** CB20043003

## CUSTOMER INFORMATION

**Order Number** 61332  
**Customer Name** Geo-Synthetics, LLC  
**Project Name** ArvinMeritor Stamping Plant  
**Location** Grenada, MS

<b>Pressure (psf)</b>	<b>Gradient</b>	<b>Net/Composite</b>	<b>Transmissivity Results</b>		<b>Seal Time (min)</b>	<b>Boundary</b>
			<b>(m<sup>2</sup>/sec)</b>	<b>(gal/min/ft)</b>		
400	0.33	Composite	1.66E-03	8.21	15	Soil/Geocomposite/Geomembrane
10000	1.00	Composite	6.20E-04	3.00	15	SS Plates
10000	1.00	Net	2.02E-03	9.76	15	SS Plates

**Equistar Chemicals, LP**  
**One Houston Center**  
**1221 McKinney**  
**Houston TX 77010**

### Certificate Of Analysis

Certificate of Analysis Contact:  
GSE LINING TECHNOLOGY INC  
1245 EASTLAND AVENUE  
KINGSTREE SC 29556

Ship-To Address:  
GSE LINING TECHNOLOGY INC  
1245 EASTLAND AVENUE  
KINGSTREE SC 29556  
USA

Equistar Material : 504295 PETROTHENE® LR732001  
Batch Number : CB20043003  
Vehicle Number : CITX200131  
Estimated Quantity : 196,050 LBS

Customer Order No. : 03-062108  
Customer Number : 42584  
Date Shipped : May 03, 2010  
Equistar Order No. : 1872779 000010  
Delivery Item No. : 82292540 000010

Test Description	Test Result	Unit of Measure
Vehicle ID	CITX200131	
Vehicle Type	HOPPER CAR	
Density, Extrudate @ 23C	0.9536	g/cc STM 011
Melt Index, 2160g @ 190C	0.34	g/10 min. STM 002

Data reported was generated in an approved  
Quality Assurance Lab

Print Date: May 03, 2010 BNLITTLE  
This information is available 24 hours a day at  
[www.CustomerXPRESS.com](http://www.CustomerXPRESS.com)  
Questions ? Call Customer Service: 888-777-0232

This Certificate of Analysis contains the most current information available as of the print date.  
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1245 Eastland Avenue  
Kingstree, SC 29556  
Phone 843-382-4603  
Fax 843-382-4604

Date: June 7, 2010

Project: # 61332 ArvinMeritor Stamping Plant

Ref: Ultraviolet (UV) Resistance and Test Frequency of GSE Geotextiles

To Whom It May Concern:

The resistance of nonwoven needle punched geotextiles to ultraviolet light depends primarily on antioxidant and carbon black package mixed with resin to prepare a formulation for fiber extrusion. As long as this formulation remains the same the UV resistance of a geotextiles does not change. Therefore, GSE performs UV testing only once per resin formulation. The testing is performed according to ASTM Test Method D 4355 and results are included on GSE geotextile specification sheet. Currently, all GSE geotextiles meet or exceed a value of 70% strength retained after 500 hours of UV exposure. GSE will meet or exceed this value for the referenced project.

Although GSE geotextiles are manufactured using one of the best available antioxidant packages, we recommend covering the geotextiles within 15 days of exposure to direct Sunlight. This period does not include time during which geotextiles rolls remain on site covered in black shrink-wrap. Our recommendation is based on UV performance data published in technical literature indicating geotextile strength can decrease sharply after prolonged exposure to Sunlight.

Actual data from an independent laboratory can be supplied upon request.

A handwritten signature in cursive script, reading "Jane Allen", written in dark ink.

Jane Allen  
Laboratory Manager



## Geomembrane QA Laboratory Test Results

60-mil Textured HDPE Geomembrane QA Laboratory Test Results

Roll Number	Thickness (mil)		Sheet Density (g/cm <sup>3</sup> )	Tensile Properties								Puncture Resistance (lbs)	Carbon Black Content (%)	Carbon Black Dispersion (%)	Pass/Fail	
				Yield Strength (ppi)		Break Strength (ppi)		Yield Elongation (%)		Break Elongation (%)						
	AVE.	MIN.		MD	TD	MD	TD	MD	TD	MD	TD					
Project Criteria	57	54	0.940	126		120		12		100		42		2.0 – 3.0	9 in Cat 1 or 2	
103178938	61	60	0.9486	179	185	218	201	19	18	512	498	53	50	2.44	10	Pass
103178942	61	61	0.949	170	1173	203	184	19	17	473	435	57	54	2.43	10	Pass
NOTES:																

NOTES:

AVE. - Average.

MIN. - Minimum.

g/cm<sup>3</sup> - grams per cubic centimeter.

ppi - pounds per inch.

MD - Machine direction.

TD - Transverse direction.

lbs - pounds.

% - percent.

**TABLE 1.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

Date Received: 6/18/2010  
 Date Reported: 6/22/2010  
 Client Sample ID: R#103178942  
 Material Description: 60mil HDPE Textured Geomembrane

QC'd By: B. Yeo  
 PGL Job No.: G100684  
 PGL Control No.: 67524

METHOD	DESCRIPTION	SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
		1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° ± 2° to the horizontal with the tip rounded to a radius of 0.8 ± 0.1 mm (0.031 ± 0.004 in), with a specified force of 0.56 ± 0.05 N (2 ± 0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		63	62	61	61	62	61	61	61	61	61	61	1	61	63	
ASTM D1505	Density (grams/cm. <sup>3</sup> ) <b>0.9490 0.9490 0.9490</b>											<b>0.9490</b>	<b>0.0000</b>	<b>0.9490</b>	<b>0.9490</b>	
ASTM D6693	<u>Tensile Properties:</u>															
Type IV	<i>Test Specimens: Type IV, Width of narrow section: 0.25in, Length of narrow section: 1.3in, Width Overall: 0.75in, Length Overall: 4.5in Conditioning: Conducted test in standard laboratory atmosphere of 23 ± 2° C (73.4 ± 3.6° F), and 50 ± 5% relative humidity. Rate of Separation: 2"/min</i>															
	Tensile Strength at Yield (lbs/ in.-width)															
	MD 163 179 175 171 164											170	7	163	179	
	TD 178 172 178 170 166											173	5	166	178	
	Tensile Strength at Break (lbs/ in.- width)															
	MD 182 214 205 180 233											203	22	180	233	
	TD 184 196 189 185 167											184	11	167	196	
	Elongation at Yield (percent, %)															
	MD 18 18 18 19 20											19	1	18	20	
	TD 17 17 17 17 17											17	0	17	17	
	Elongation at Break (percent, %) <i>Gauge Length = 2.0 in.</i>															
	MD 418 491 477 411 570											473	65	411	570	
	TD 375 495 468 430 406											435	48	375	495	
ASTM D1004	Tear Resistance (lbs)															
Die C	<i>Machine: Tensile machine equipped with constant rate of extension and chart recorder.</i>															
	MD 56 57 56 57 58 59 60 58 59 55											57	1	55	60	
	TD 57 54 53 53 55 55 53 55 55 54											54	1	53	57	

Continued on next page

MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION  
 DC#1987 Record #268



**TABLE 1.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

Date Received: 6/18/2010  
Date Reported: 6/22/2010  
Client Sample ID: R#103178942  
Material Description: 60mil HDPE Textured Geomembrane

QC'd By: B. Yeo  
PGL Job No.: G100684  
PGL Control No.: 67524

METHOD	DESCRIPTION	SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
		1	2	3	4	5	6	7	8	9	10					
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens were extended beyond the outer edges of the clamping plates.</i>															
		141	140	142	141	140	142	143	141	142	140	141	1	138	143	
ASTM D1603	Carbon Black Content (percent, %)	140	142	140	138	140										
		2.43	2.43									2.43	0.00	2.43	2.43	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)	1	1	1	1	1	1	1	1	1	1	10 out of 10 in Category 1				

*End of Table 1*

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

MD - MACHINE DIRECTION  
TD - TRANSVERSE DIRECTION  
DC#1987 Record #268





**TABLE 2.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

Date Received: 6/18/2010  
 Date Reported: 6/22/2010  
 Client Sample ID: R#103178938  
 Material Description: 60mil HDPE Textured Geomembrane

QC'd By: B. Yeo  
 PGL Job No.: G100684  
 PGL Control No.: 67525

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5994	Thickness (mils) <i>Apparatus: Dead-weight dial micrometer with gauge points tapered at an angle of 60° +/- 2° to the horizontal with the tip rounded to a radius of 0.8 +/- 0.1 mm (0.031 +/- 0.004 in), with a specified force of 0.56 +/- 0.05 N (2 +/- 0.2 oz)</i> <i>Loading Time: 5 sec Specimen Size: 4" x 4"</i>															
		62	61	61	60	61	61	62	61	62	61	61	1	60	62	
ASTM D1505	Density (grams/cm. <sup>3</sup> ) <b>0.9486 0.9486 0.9486</b>											<b>0.9486</b>	<b>0.0000</b>	<b>0.9486</b>	<b>0.9486</b>	
ASTM D6693 Type IV	<u>Tensile Properties:</u> <i>Test Specimens: Type IV. Width of narrow section: 0.25in. Length of narrow section: 1.3in. Width Overall: 0.75in. Length Overall: 4.5in. Conditioning: Conducted test in standard laboratory atmosphere of 23 +/- 2° C (73.4 +/- 3.6° F), and 50 +/- 5% relative humidity. Rate of Separation: 2"/min</i>															
	Tensile Strength at Yield (lbs/ in.-width)															
	MD 183 176 176 179 180											179	3	176	183	
	TD 189 186 179 184 187											185	4	179	189	
	Tensile Strength at Break (lbs/ in.- width)															
	MD 206 208 191 237 249											218	24	191	249	
	TD 205 180 208 220 190											201	16	180	220	
	Elongation at Yield (percent, %)															
	MD 19 18 18 20 20											19	1	18	20	
	TD 19 19 18 18 18											18	0	18	19	
	Elongation at Break (percent, %) <i>Gauge Length = 2.0 in.</i>															
	MD 491 462 430 575 599											512	72	430	599	
	TD 518 427 543 528 474											498	47	427	543	
ASTM D1004 Die C	Tear Resistance (lbs) <i>Machine: Tensile machine equipped with constant rate of extension and chart recorder</i>															
	MD 53 54 52 53 55 54 54 53 49 56											53	2	49	56	
	TD 48 47 48 47 48 51 53 50 51 52											50	2	47	53	

*Continued on next page*

MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION  
 DC#1987 Record #268



**TABLE 2.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

Date Received: 6/18/2010  
 Date Reported: 6/22/2010  
 Client Sample ID: R#103178938  
 Material Description: 60mil HDPE Textured Geomembrane

QC'd By: B. Yeo  
 PGL Job No.: G100684  
 PGL Control No.: 67525

METHOD	DESCRIPTION	SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
		1	2	3	4	5	6	7	8	9	10					
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens were extended beyond the outer edges of the clamping plates.</i>															
		138	141	139	139	137	140	140	142	140	141	140	2	137	142	
ASTM D1603	Carbon Black Content (percent, %)	138	140	142	142	140										
		2.44	2.44									2.44	0.00	2.44	2.44	
ASTM D5596	Carbon Black Dispersion (category rating per reference chart PCN: 12-455960-38)	1	1	1	1	1	1	1	1	1	1	10 out of 10 in Category 1				

End of Table 2

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report, and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION  
 DC#1987 Record #268



## Geocomposite QA Laboratory Test Results

Geocomposite QA Laboratory Test Results - Geotextile

Roll Number	Unit Weight (oz/yd <sup>2</sup> )	Grab Strength (lbs)		Grab Elongation (%)		Trapezoidal Tear Strength (lbs)		Puncture Resistance (lbs)	Apparent Opening Size (AOS) (mm)	Permittivity (Sec <sup>-1</sup> )	Pass/Fail
		MD	TD	MD	TD	MD	TD				
Project Criteria	6	160		50		65		90	70 sieve	1.5	
131344100	6.7	204	284	78	101	107	131	134	0.209	1.98	Pass
131344107	6.9	204	271	75	100	103	125	135	0.208	1.92	Pass

NOTES:

oz/yd<sup>2</sup> – ounces per square yard.

MD – Machine direction.

TD – Transverse direction.

lbs – pounds.

% – percent.

mm – millimeters.



Geocomposite QA Laboratory Test Results - Geonet

Roll Number	Density (g/cc)	Carbon Black Content (%)	Pass/Fail
Project Criteria	0.940	1.5 - 3.0	
131344100	0.9547	2.5	Pass
131344107	0.9542	2.44	Pass

NOTES:

*g/cc - grams per cubic centimeter.*

*ppi - pounds per inch.*

*% - percent.*

Geocomposite QA Laboratory Test Results - Geocomposite						
Roll Number	Pressure (psf)	Component	Seat Time (min)	Boundary	Transmissivity m <sup>2</sup> /sec gal/min/ft	Pass/Fail
Project Criteria			15		1.0 x 10 <sup>-04</sup> 0.48	
131344100	10000	Composite	15	SS Plate/Geocomposite/SS Plate	6.44 x 10 <sup>-04</sup> 3.11	Pass
131344107	10000	Composite	15	SS Plate/Geocomposite/SS Plate	6.29 x 10 <sup>-04</sup> 3.04	Pass

NOTES:

psf - pounds per square foot.

min - minutes.

m<sup>2</sup>/sec -square meters per second.

gal/min/ft - gallons per minute per foot

SS - Stainless Steel.



QC'd By: B. Yeo  
PGL Job No.: G100685  
PGL Control No.: 67526

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**Precision Geosynthetic Laboratories**





QC'd By: B. Yeo  
PGL Job No.: G100685  
PGL Control No.: 67527

SPECIMENS										Proj. Specs.			
1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max
<b>METHOD DESCRIPTION</b>													
<u><b>GEONET COMPONENT:</b></u>													
ASTM D1505	Density (grams/ cm. <sup>3</sup> )	0.9542	0.9542	0.9542						0.9542	0.0000	0.9542	0.9542
ASTM D1603	Carbon Black Content (percent)	2.44	2.44							2.44	0.00	2.44	2.44
<u><b>GEOCOMPOSITE:</b></u>													
ASTM D4716	Transmissivity	<i>Tested at Normal Pressure : 10,000 psf, Gradient: 1.0 , Seating Time: 15 mins</i> <i>Temperature of Test Water: 20.2° C Specimen Size: 12" x 14"</i>											
	Transmissivity (m. <sup>2</sup> / sec.)	MD 6.19E-04	6.40E-04							6.29E-04	1.43E-05	6.19E-04	6.40E-04
	Flow Rate (gal/min)	MD 3.01	3.10							3.06	0.07	3.01	3.10
	Transmissivity (gal/min/ft)	MD 2.99	3.09							3.04	0.07	2.99	3.09
	Test Set-Up:	<i>Thickness : 340 mils (Before)</i> <i>Thickness : 316.5 mils (After)</i>											
	Plate												
	Geocomposite	XXXXXX											
	Plate												

MD - MACHINE DIRECTION  
DC#1984 Record#265



## Precision Geosynthetic Laboratories





**TABLE 1A.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**



Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344100  
 Material Description: Non-Woven Geotextile Component Double-Sided Geocomposite

QC'd By: B. Yeo  
 PGL Job No.: G100685  
 PGL Control No.: 67526

(Top)

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5261	Mass per Unit Area (oz/ yd. <sup>2</sup> ) <i>Test Specimen Size: 4" x 8"</i>															
		6.6	6.7	6.8	7.0	6.7						6.7	0.2	6.6	7.0	
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
	Grab Breaking Load (lbs)															
	MD	208	211	206	212	200	198	193	200	212	200	204	6	193	212	
	TD	261	242	278	298	300	311	288	288	300	278	284	21	242	311	
	Apparent Breaking Elongation (percent)															
	MD	87	86	77	75	73	80	73	74	74	77	78	5	73	87	
	TD	100	94	102	104	101	104	102	104	101	100	101	3	94	104	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens were extended beyond the outer edges of the clamping plates.</i>															
		138	140	127	138	140	130	136	128	128	130	134	6	127	147	
		128	130	140	147	138										
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>															
	MD	112	110	108	100	113	111	120	100	96	102	107	7	96	120	
	TD	111	123	130	145	150	124	126	128	130	145	131	12	111	150	

Continued on next page

\*-Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION



Precision Geosynthetic Laboratories



**TABLE 1A.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344100  
 Material Description: **Non-Woven Geotextile Component Double-Sided Geocomposite**

QC'd By: B. Yeo  
 PGL Job No.: **G100685**  
 PGL Control No.: **67526**

(Top)

		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	SPECIMENS														
ASTM D4491	Permittivity (sec. <sup>-1</sup> )															
Constant Head	Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen. BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.															
	2.06 1.99 1.95 1.92											1.98	0.06	1.92	2.06	
	Permeability (cm./ sec.)															
	0.32 0.34 0.34 0.33											0.33	0.01	0.32	0.34	
	Flow Rate (gpm/ ft. <sup>2</sup> )															
	154 149 146 144											148	4	144	154	
ASTM D4751	Apparent Opening Size (U.S. standard sieve size) <i>See Note 1</i>															
	Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100 70-100											70-100	N/A	N/A	N/A	
ASTM D4751	Apparent Opening Size (mm)															
	Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	0.208 0.210											0.209	N/A	N/A	N/A	
ASTM D4355*	UV Exposure Xenon ARC Hrs of Exposure <u>500 hrs</u>															
ASTM D4632	Grab Tensile <b>After Exposure</b>															
	Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
	Grab Breaking Load (lbs)															
	MD 190 195											193	4	190	195	
	Apparent Breaking Elongation (percent)															
	MD 66 66											66	0	66	66	

Continued on next page

\*Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION



**TABLE 1A.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**



Date Received: **6/18/2010**  
 Date Reported: **8/24/2010**  
 Client Sample ID: **R#131344100**  
 Material Description: **Non-Woven Geotextile Component Double-Sided Geocomposite**

QC'd By: **B. Yeo**  
 PGL Job No.: **G100685**  
 PGL Control No.: **67526**

(Top)

		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION															
ASTM D4355	UV Exposure (% Retained) for ASTM 4632 Grab Tensile															
	Tests were made as directed in ASTM D4355. Total Exposure time: <u>500</u> hrs															
	Grab Breaking Load (lbs % Retained)															
	MD 94											94	N/A			
	Apparent Breaking Elongation (% Retained)															
	MD 85											85	N/A			

End of Table 1A

**Note 1:**

ASTM D4751 Test method requires 5 specimens, only 2 specimens were tested due to limited samples received.

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\*Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION



**TABLE 1B.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**



Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344100  
 Material Description: Non-Woven Geotextile Component Double-Sided Geocomposite

QC'd By: B. Yeo  
 PGL Job No.: G100685  
 PGL Control No.: 67526

(Bottom)

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5261	Mass per Unit Area (oz/ yd. <sup>2</sup> ) <i>Test Specimen Size: 4" x 8"</i>															
		6.7	7.0	7.0	7.1	6.9						6.9	0.1	6.7	7.1	
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
	Grab Breaking Load (lbs)															
	MD	199	206	200	206	211	208	206	220	206	212	207	6	199	220	
	TD	235	238	260	298	276	260	260	259	280	271	264	19	235	298	
	Apparent Breaking Elongation (percent)															
	MD	73	77	77	73	74	74	75	74	72	73	74	2	72	77	
	TD	87	94	95	104	94	93	94	97	101	104	96	5	87	104	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens were extended beyond the outer edges of the clamping plates.</i>															
		140	142	138	142	128	130	128	130	135	130	136	6	128	144	
		144	142	140	137	130										
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>															
	MD	112	106	106	100	102	103	100	100	106	102	104	4	100	112	
	TD	131	130	120	128	120	126	132	140	150	127	130	9	120	150	

Continued on next page

\*-Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION





**TABLE 1B.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**



Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344100  
 Material Description: Non-Woven Geotextile Component Double-Sided Geocomposite

QC'd By: **B. Yeo**  
 PGL Job No.: **G100685**  
 PGL Control No.: **67526**

(Bottom)

		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	SPECIMENS														
ASTM D4491	Permittivity (sec. <sup>-1</sup> )															
Constant Head	Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen. BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.															
	1.98 1.95 1.95 2.00											1.97	0.02	1.95	2.00	
	Permeability (cm./sec.)															
	0.34 0.35 0.34 0.33											0.34	0.01	0.33	0.35	
	Flow Rate (gpm/ft. <sup>2</sup> )															
	148 146 146 150											148	2	146	150	
ASTM D4751	Apparent Opening Size (U.S. standard sieve size) <i>See Note 1</i> Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100 70-100											70-100	N/A	N/A	N/A	
ASTM D4751	Apparent Opening Size (mm) Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	0.211 0.211											0.211	N/A	N/A	N/A	
ASTM D4355*	UV Exposure Xenon ARC Hrs of Exposure <u>500 hrs</u>															
ASTM D4632	Grab Tensile <b>After Exposure</b> Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs															
	Grab Breaking Load (lbs)															
	MD 188 198 198											195	6	188	198	
	Apparent Breaking Elongation (percent)															
	MD 53 57 60											57	4	53	60	

Continued on next page

\*Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

 Precision Geosynthetic Laboratories



**TABLE 1B.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

*[Signature]*

Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344100  
 Material Description: Non-Woven Geotextile Component Double-Sided Geocomposite

QC'd By: **B. Yeo**  
 PGL Job No.: **G100685**  
 PGL Control No.: **67526**

(Bottom)

		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	SPECIMENS														
ASTM D4355	UV Exposure (% Retained) for ASTM 4632 Grab Tensile <i>Tests were made as directed in ASTM D4355. Total Exposure time: 500 hrs</i> Grab Breaking Load (lbs % Retained) <i>MD 94</i> Apparent Breaking Elongation (% Retained) <i>MD 76</i>											94	N/A			
												76	N/A			

*End of Table 1B*

**Note 1:**

*ASTM D4751 Test method requires 5 specimens, only 2 specimens were tested due to limited samples received.*

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\*Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION



**TABLE 2A.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

*[Signature]*

Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344107  
 Material Description: **Non-Woven Geotextile Component Double-Sided Geocomposite**

QC'd By: **B. Yeo**  
 PGL Job No.: **G100685**  
 PGL Control No.: **67527**

(Top)

		SPECIMENS														Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	
ASTM D5261	Mass per Unit Area (oz/ yd. <sup>2</sup> ) <i>Test Specimen Size: 4" x 8"</i>															
		6.7	6.8	6.9	7.0	7.0						6.9	0.1	6.7	7.0	
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
	Grab Breaking Load (lbs)															
	MD	207	220	206	212	208	200	198	192	190	211	204	9	190	220	
	TD	236	240	260	281	290	275	280	288	300	260	271	21	236	300	
	Apparent Breaking Elongation (percent)															
	MD	77	80	73	70	74	77	75	73	77	73	75	3	70	80	
	TD	92	99	97	101	104	101	102	104	107	97	100	4	92	107	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens were extended beyond the outer edges of the clamping plates.</i>															
		131	129	143	145	142	127	134	128	130	132	135	7	127	145	
		128	140	141	130	141										
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>															
	MD	97	103	100	102	103	111	106	102	103	100	103	4	97	111	
	TD	138	127	120	122	120	126	130	126	119	121	125	6	119	138	

Continued on next page

\*Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

 Precision Geosynthetic Laboratories



**TABLE 2A.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

*[Signature]*

Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344107  
 Material Description: Non-Woven Geotextile Component Double-Sided Geocomposite

QC'd By: B. Yeo  
 PGL Job No.: G100685  
 PGL Control No.: 67527

(Top)

		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	SPECIMENS														
ASTM D4491	Permittivity (sec. <sup>-1</sup> )															
Constant Head	Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen. BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.															
	1.95 1.90 1.93 1.92											1.92	0.02	1.90	1.95	
	Permeability (cm./sec.)															
	0.34 0.35 0.35 0.35											0.35	0.00	0.34	0.35	
	Flow Rate (gpm/ft. <sup>2</sup> )															
	146 142 144 144											144	2	142	146	
ASTM D4751	Apparent Opening Size (U.S. standard sieve size) <i>See Note 1</i> Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100 70-100											70-100	N/A	N/A	N/A	
ASTM D4751	Apparent Opening Size (mm) Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	0.209 0.206											0.208	N/A	N/A	N/A	

End of Table 2A

**Note 1:**

ASTM D4751 Test method requires 5 specimens, only 2 specimens were tested due to limited samples received.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

\*Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION





**TABLE 2B.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**



Date Received: **6/18/2010**  
 Date Reported: **8/24/2010**  
 Client Sample ID: **R#131344107**  
 Material Description: **Non-Woven Geotextile Component Double-Sided Geocomposite**

QC'd By: **B. Yeo**  
 PGL Job No.: **G100685**  
 PGL Control No.: **67527**

(Bottom)

		SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	1	2	3	4	5	6	7	8	9	10					
ASTM D5261	Mass per Unit Area (oz/ yd. <sup>2</sup> ) <i>Test Specimen Size: 4" x 8"</i>															
		6.6	6.9	6.8	6.7	6.9						6.8	0.1	6.6	6.9	
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
	Grab Breaking Load (lbs)															
	MD	198	209	208	212	230	226	228	220	211	211	215	10	198	230	
	TD	238	242	230	242	250	251	260	260	242	230	244	11	230	260	
	Apparent Breaking Elongation (percent)															
	MD	79	73	77	73	80	75	77	75	76	77	76	2	73	80	
	TD	97	94	97	102	104	94	97	101	104	94	98	4	94	104	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens were extended beyond the outer edges of the clamping plates.</i>															
		136	142	138	142	143	130	127	128	128	130	134	6	127	143	
		127	141	137	130	128										
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>															
	MD	101	103	102	98	93	102	102	107	98	95	100	4	93	107	
	TD	126	130	120	111	106	120	111	120	120	113	118	7	106	130	

Continued on next page

\*Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

 Precision Geosynthetic Laboratories



**TABLE 2B.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**



Date Received: 6/18/2010  
 Date Reported: 8/24/2010  
 Client Sample ID: R#131344107  
 Material Description: Non-Woven Geotextile Component Double-Sided Geocomposite

QC'd By: B. Yeo  
 PGL Job No.: G100685  
 PGL Control No.: 67527

(Bottom)

		1	2	3	4	5	6	7	8	9	10	Avg.	Std. Dev.	Min	Max	Proj. Specs.
METHOD	DESCRIPTION	SPECIMENS														
ASTM D4491	Permittivity (sec. <sup>-1</sup> )															
Constant Head	Four specimens were tested by holding the head constant at 50 mm. The corresponding water volume passing through the specimen was collected at the discharge side and the amount and time recorded. Five readings were taken for each specimen. BT Technology permittivity testing apparatus compliant to ASTM D4491 requirements was used.															
	1.93 1.92 1.90 1.92											1.92	0.01	1.90	1.93	
	Permeability (cm./sec.)															
	0.35 0.34 0.35 0.35											0.35	0.01	0.34	0.35	
	Flow Rate (gpm/ft. <sup>2</sup> )															
	144 144 142 144											143	1	142	144	
ASTM D4751	Apparent Opening Size (U.S. standard sieve size) See Note 1 Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	70-100 70-100											70-100	N/A	N/A	N/A	
ASTM D4751	Apparent Opening Size (mm) Specimens were tested as directed in Test Method D4751. Type of sieve shaker used is W.S. Tyler Rotap.															
	0.208 0.208											0.208	N/A	N/A	N/A	

End of Table 2B

Note 1:

ASTM D4751 Test method requires 5 specimens, only 2 specimens were tested due to limited samples received.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report; and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

\*-Sub out  
 MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION

 Precision Geosynthetic Laboratories



## Trial Weld Results

## Geomembrane Trial Weld Summary

Project Name: Sludge Lagoon Closure  
Project Number: 138466

CQA Monitor: Rick Isaac

Project Criteria: 78 ppi Fusion; 72 ppi Extrusion

Test No.	Date	Time	Weather (Cloudy/ Sunny)	Amb. Temp (°F)	Welder I.D.	Machine Number	Temp. Setting/ Speed	Weld Type F/E	PEEL (ppi)						SHEAR (ppi)			Test Result (P/F)	Comments
									Outside Weld			Inside Weld			1	2	3		
									1	2	3	1	2	3					
1	7/14/10	1300	Sunny	95	ST	W77	750/5.5	F	135	142	130	134	142	131	156	159	156	P	
2	7/14/10	1315	Sunny	95	MC	W101	750/6.5	F	131	129	126	132	139	138	152	155	150	P	
3	7/14/10	1315	Sunny	95	AS	W78	750/5.0	F	116	120	122	125	123	125	146	145	143	P	
4	7/14/10	1320	Sunny	95	VB	W79	750/5.0	F	126	125	127	118	134	123	141	156	148	P	

1	7/15/10	635	Sunny	87	AS	W78	750/5.0	F	130	142	133	137	134	135	159	154	163	P	
2	7/15/10	645	Sunny	87	MC	W101	750/6.5	F	135	127	127	124	128	131	160	145	160	P	
3	7/15/10	650	Sunny	87	VB	W79	750/5.0	F	127	141	135	129	127	142	161	172	167	P	
4	7/15/10	830	Sunny	92	ST	X73	275/250	E	111	126	137				157	163	168	P	
5	7/15/10	921	Sunny	90	FS	X53	275/270	E	143	138	138				152	155	153	P	

### NOTES:

ppi - pound per inch.

F/E - Fusion weld/Extrusion weld.

P/F - Passing test result/Failing test result.



## Geomembrane Panel Seaming Summary

**Geomembrane Panel Seaming Summary**

Project Name: Sludge Lagoon Closure

CQA Monitor: Rick Isaac

Project Number: 138466

Seam Number	Date Seamed	Final Seam Length (Feet)	Welder ID	Weld Type	Machine Number	Machine Temp/ Speed or Preheat	Time		Ambient Temperature (°F)	Comments
							Start	Stop		
P3/P4	7/14/10	22	MC	F	W101	750/6.5	1405	1409	95	
P2/P4	7/14/10	167	MC	F	W101	750/6.5	1416	1442	95	
P2/P3	7/14/10	33	MC	F	W101	750/6.5	1449	1454	95	
P1/P2	7/14/10	243	AS	F	W78	750/5.0	1405	1452	95	
P1/P5	7/14/10	264	VB	F	W79	700/6.0	1435	1519	95	
P6/P7	7/14/10	22	MC	F	W101	750/6.5	1502	1506	95	
P6/P8	7/14/10	36	MC	F	W101	750/6.5	1510	1516	95	
P4/P6	7/14/10	95	MC	F	W101	750/6.5	1545	1559	95	
P5/P9	7/14/10	265	AS	F	W78	750/5.0	1524	1607	95	
P9/P10	7/14/10	265	VB	F	W79	750/5.0	1545	1638	95	
P4/P7	7/14/10	25	MC	F	W101	750/6.5	1601	1605	95	
P10/P11	7/14/10	264	MC	F	W101	750/6.5	1615	1656	95	
P11/P12	7/14/10	262	AS	F	W78	750/5.0	1650	1742	95	
P12/P13	7/14/10	260	VB	F	W79	750/5.0	1700	1752	95	

## Geomembrane Panel Seaming Summary

Project Name: Sludge Lagoon Closure

CQA Monitor: Rick Isaac

Project Number: 138466

Seam Number	Date Seamed	Final Seam Length (Feet)	Welder ID	Weld Type F/E	Machine Number	Machine Temp/Speed or Preheat	Time		Ambient Temperature (°F)	Comments
							Start	Stop		
P13/P14	7/14/10	258	MC	F	W101	750/6.5	1730	1809	95	
P14/P15	7/14/10	257	VB	F	W79	750/5.0	1805	1857	95	
P15/P16	7/14/10	257	AS	F	W78	750/5.0	1805	1856	95	
P16/P17	7/15/10	254	AS	F	W78	750/5.0	705	756	72	
P17/P18	7/15/10	243	MC	F	W101	750/6.5	716	753	72	
P18/P19	7/15/10	230	VB	F	W79	750/5.0	725	811	72	
P19/P20	7/15/10	210	AS	F	W78	750/5.0	820	902	72	
P20/P21	7/15/10	173	MC	F	W101	750/6.5	826	853	72	
P21/P22	7/15/10	30	VB	F	W79	750/5.0	825	831	72	
P22/P23	7/15/10	15	VB	F	W79	750/5.0	832	835	72	
P21/P23	7/15/10	67	VB	F	W79	750/5.0	830	843	72	
P18/R10	7/15/10	6	FS	E	X53	275/270	1010		72	
P19/R10	7/15/10	12	FS	E	X53	275/270	1015		72	
P19/R11	7/15/10	6	FS	E	X53	275/270	1031		72	
P20/R11	7/15/10	10	FS	E	X53	275/270	1037		72	

## Field Non-Destructive Seam Test Results



## Geomembrane Non-Destructive Test Summary

Project Name: Sludge Lagoon Closure

CQA Monitor: Rick Isaac

Project Number: 138466

Air Test Criteria: 30 psi for 5 minutes, acceptable pressure drop  $\leq$  3psi

Seam Number	Distance (Feet)	Air Test						Comments
		Air Test Date	Air Pressure				Air Test Results (Pass/Fail)	
			Start		End			
			psi	Time	psi	Time		
P1/P2	243	7/14/10	30	1500	30	1505	Pass	
P2/P3	33	7/14/10	30	1511	30	1516	Pass	
P3/P4	22	7/14/10	30	1506	29	1511	Pass	
P2/P4	167	7/14/10	30	1540	30	1545	Pass	
P6/P7	22	7/14/10	30	1548	29	1553	Pass	
P6/P8	36	7/14/10	30	1600	30	1605	Pass	
P3/P7	18	7/14/10	30	1620	30	1625	Pass	
P4/P7	25	7/14/10	30	1619	30	1624	Pass	
P9/P10	265	7/14/10	30	1656	30	1701	Pass	
P5/P9	265	7/14/10	30	1653	30	1658	Pass	
P1/P5	264	7/14/10	30	1650	30	1655	Pass	
P10/P11	264	7/14/10	30	1733	29	1738	Pass	
P11/P12	262	7/14/10	30	1745	30	1750	Pass	
P12/P13	260	7/14/10	30	1755	29	1800	Pass	

NOTES:

psi - pounds per square inch.

## Geomembrane Non-Destructive Test Summary

Project Name: Sludge Lagoon Closure

CQA Monitor:

Rick Isaac

Project Number: 138466

Air Test Criteria: 30 psi for 5 minutes, acceptable pressure drop  $\leq$  3psi; Vacuum Test Criteria: 10 seconds at 5 psi

Seam Number	Distance (Feet)	Air Test							Vacuum Test		Comments
		Air Test Date	Air Pressure			Air Test Results (Pass/Fail)	Vacuum Test Date	Vacuum Test Results (Pass/Fail)			
			Start		End						
			psi	Time	psi				Time		
P13/P14	258	7/14/10	30	1821	30	1826	Pass				
P14/P15	258	7/15/10	30	626	30	631	Pass				
P15/P16	257	7/15/10	30	631	29	636	Pass				
P16/P17	254	7/15/10	30	758	30	803	Pass				
P17/P18	243	7/15/10	30	814	30	819	Pass				
P18/P19	230	7/15/10	30	818	30	823	Pass				
P19/P20	210	7/15/10	30	902	29	907	Pass				
P20/P21	173	7/15/10	30	908	30	913	Pass				
P21/P23	67	7/15/10	30	912	30	917	Pass				
P21/P22	30	7/15/10	30	918	30	923	Pass				
P22/P23	15	7/15/10	30	914	29	919	Pass				
P18/R10	6							7/15/10	Pass		
P19/R10	12							7/15/10	Pass		
P19/R11	6							7/15/10	Pass		
P20/R11	10							7/15/10	Pass		

NOTES:

psi - pounds per square-inch.

## Field Destructive Seam Test Results

## Geomembrane Field Destructive Test Summary

Project Name: Sludge Lagoon Closure

CQA Monitor: Rick Isaac

Project Number: 138466

Project Criteria: 78 ppi

Destructive Sample Number	Seam Number	Date Seamed	Welder ID	Machine Number	Date Sampled	Sample Location Description	Peel (ppi)		Shear (ppi)	Comments
							Inside Track	Outside Track		
DS1	P3/P4	7/14/10	MC	W101	7/15/10	Midseam	146/148/126/ 138/150	137/129/120/ 128/131	151/163/160/ 154/169	Pass
DS2	P1/P2	7/14/10	AS	W78	7/15/10	200 feet N	125/125/117/ 119/125	118/116/119/ 121/125	169/172/167/ 174/170	Pass
DS3	P9/P10	7/14/10	VB	W79	7/15/10	50 north N	114/119/117/ 115/118	113/120/125/ 121/120	165/158/175/ 169/172	Pass
DS4	P11/P12	7/14/10	AS	W78	7/15/10	150 feet N	110/113/121/ 118/118	115/114/114/ 113/113	168/178/171/ 167/170	Pass
DS5	P14/P15	7/14/10	VB	W79	7/15/10	100 feet N	125/115/129/ 111/109	118/120/110/ 112/108	156/160/166/ 154/156	Pass
DS6	P13/P14	7/14/10	MC	W101	7/15/10	200 feet N	109/112/114/ 104/109	110/112/103/ 107/113	146/147/137/ 140/144	Pass
DS7	P16/P17	7/15/10	AS	W78	7/15/10	50 feet N	117/122/112/ 114/103	123/111/114/ 96/123	127/133/129/ 131/132	Pass
DS8	P17/P18	7/15/10	MC	W101	7/15/10	150 feet N	115/110/114/ 111/118	117/112/107/ 110/113	127/126/130/ 129/136	Pass
DS9	P21/P23	7/15/10	VB	W79	7/15/10	20 feet N	112/100/111/ 107/112	107/99/98/ 101/107	136/138/141/ 129	Pass

NOTES:

ppi - pounds per inch.

N - measured south from the north end of the seam.



## Laboratory Destructive Seam Test Results

Laboratory Destructive Seam Test Results																			
Sample ID	Panel Number	Peel (ppi)										Shear (ppi)					Test Result		
		Inside Weld					Outside Weld												
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5		(Pass/Fail)	
Project Criteria: 78 ppi																			
DS-1	P1/P2	141	138	129	136	141	134	129	129	134	127	168	168	168	170	166	Pass		
DS-2	P4/P4	136	129	127	128	128	129	136	140	142	137	170	170	170	168	166	Pass		
DS-3	P9/P10	130	127	138	137	128	140	127	127	146	129	168	171	170	176	172	Pass		
DS-4	P11/P12	127	136	141	127	130	127	126	124	126	130	172	170	168	168	168	Pass		
DS-5	P14/P15	127	129	130	131	132	136	141	128	129	130	178	176	171	172	171	Pass		
DS-6	P13/P14	141	120	136	141	142	141	127	128	122	136	173	169	168	170	170	Pass		
DS-7	P16/P17	126	126	141	129	130	136	127	128	130	127	175	178	177	175	178	Pass		
DS-8	P17/P18	134	128	127	125	126	127	130	124	126	129	170	171	175	175	175	Pass		
DS-9	P21/P23	127	128	127	126	127	130	127	125	129	130	168	170	175	175	169	Pass		

NOTES:

ppi – pounds per inch

**TABLE 1.  
SEAM PEEL AND SHEAR TEST RESULTS**

CLIENT: **BROWN & CALDWELL**  
PROJECT: **Grenada Sludge Lagoon Closure**  
DATE RECD: **16-Jul-10**

MATERIAL: **HDPE SEAM**  
SEAM TYPE: **Fusion Weld**  
PGL JOB #: **G100828**

QC'd By: **B. Yeo**  
TEST METHOD: **ASTM D6392**  
DATE REPORT: **16-Jul-10**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min				
SAMPLE ID	PGL CONTROL #	SHEAR EVALUATION				PEEL EVALUATION				
		MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC (lb/in width)
DS- 1 P1/P2	68242	168	> 50%	BRK		1 Outside	134	0	SE1	
		168	> 50%	BRK		2 Outside	129	0	SE1	
		168	> 50%	BRK		3 Outside	129	0	SE1	
		170	> 50%	BRK		4 Outside	134	0	SE1	
		166	> 50%	BRK		5 Outside	127	0	SE1	
		AVG:		131						
		STD. DEV.		3						
		1 Inside	141	0		SE1				
		2 Inside	138	0		SE1				
		3 Inside	129	0		SE1				
4 Inside	136	0	SE1							
AVG:		141	0	SE1						
STD. DEV.		5								
DS- 2 P3/P4	68243	170	> 50%	BRK		1 Outside	129	0	SE1	
		170	> 50%	BRK		2 Outside	136	0	SE1	
		170	> 50%	BRK		3 Outside	140	0	SE1	
		168	> 50%	BRK		4 Outside	142	0	SE1	
		166	> 50%	BRK		5 Outside	137	0	SE1	
		AVG:		137						
		STD. DEV.		5						
		1 Inside	136	0		SE1				
		2 Inside	129	0		SE1				
		3 Inside	127	0		SE1				
4 Inside	128	0	SE1							
AVG:		128	0	SE1						
STD. DEV.		4								
AVG:		169								
STD. DEV.		2								

**BREAK DESCRIPTION (ASTM D6392 FUSION):**

AD ADHESION FAILURE.  
BRK BREAK IN SHEETING.  
SE1 BREAK AT OUTER EDGE OF SEAM.  
SE2 BREAK AT INNER EDGE OF SEAM.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
SIP SEPARATION IN THE PLANE OF THE SHEET.

**EXTRUSION:**

AD1 ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.  
AD2 ADHESION FAILURE.  
AD-WLD BREAK THROUGH THE FILLET.  
SE1 BREAK AT BOTTOM EDGE OF SEAM.  
SE2 BREAK AT TOP EDGE OF SEAM.  
SE3 BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)  
BRK1 BREAK IN BOTTOM SHEETING.  
BRK2 BREAK IN TOP SHEETING.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
HT BREAK AT EDGE OF HOT TACK.  
SIP SEPARATION IN THE PLANE OF THE SHEET.

By accepting the data and results presented on this report, the Client agrees to limit the liability of Precision Geosynthetic Laboratories from Client and all other parties for claims on issues, due to the use of this data, to the cost for the respective tests presented in this report, and the Client agrees to indemnify and hold harmless Precision Geosynthetic Laboratories from and against all liabilities in excess of the aforementioned limit.

**TABLE 2.**  
**SEAM PEEL AND SHEAR TEST RESULTS**

CLIENT: **BROWN & CALDWELL**  
PROJECT: **Grenada Sludge Lagoon Closure**  
DATE RECD: **16-Jul-10**

MATERIAL: **HDPE SEAM**  
SEAM TYPE: **Fusion Weld**  
PGL JOB #: **G100828**

QC'd By: **B. Yeo**  
TEST METHOD: **ASTM D6392**  
DATE REPORT: **16-Jul-10**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min				
SAMPLE ID	PGL CONTROL #	SHEAR EVALUATION				SPECIMEN NUMBER	PEEL EVALUATION			
		MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC (lb/in width)		MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC (lb/in width)
DS-3 P9/P10	68244	168	> 50%	BRK		1 Outside	140	0	SE1	
		171	> 50%	BRK		2 Outside	127	0	SE1	
		170	> 50%	BRK		3 Outside	127	0	SE1	
		176	> 50%	BRK		4 Outside	146	0	SE1	
		172	> 50%	BRK		5 Outside	129	0	SE1	
		AVG: 171				AVG: 134				
		STD. DEV. 3				STD. DEV. 9				
DS-4 P11/P12	68245	172	> 50%	BRK		1 Inside	130	0	SE1	
		170	> 50%	BRK		2 Inside	127	0	SE1	
		168	> 50%	BRK		3 Inside	138	0	SE1	
		168	> 50%	BRK		4 Inside	137	0	SE1	
		169	> 50%	BRK		5 Inside	128	0	SE1	
		AVG: 169				AVG: 132				
		STD. DEV. 2				STD. DEV. 5				
						1 Outside	127	0	SE1	
						2 Outside	126	0	SE1	
						3 Outside	124	0	SE1	
						4 Outside	126	0	SE1	
						5 Outside	130	0	SE1	
		AVG: 132				AVG: 127				
		STD. DEV. 6				STD. DEV. 2				
						1 Inside	127	0	SE1	
						2 Inside	136	0	SE1	
						3 Inside	141	0	SE1	
						4 Inside	127	0	SE1	
						5 Inside	130	0	SE1	
		AVG: 132				AVG: 130				
		STD. DEV. 6				STD. DEV. 6				

**BREAK DESCRIPTION (ASTM D6392 FUSION):**

AD ADHESION FAILURE.  
BRK BREAK IN SHEETING  
SE1 BREAK AT OUTER EDGE OF SEAM.  
SE2 BREAK AT INNER EDGE OF SEAM.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
SIP SEPARATION IN THE PLANE OF THE SHEET.

**EXTRUSION:**

AD1 ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.  
AD2 ADHESION FAILURE.  
AD-WLD BREAK THROUGH THE FILLET.  
SE1 BREAK AT BOTTOM EDGE OF SEAM.  
SE2 BREAK AT TOP EDGE OF SEAM.  
SE3 BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)  
BRK1 BREAK IN BOTTOM SHEETING.  
BRK2 BREAK IN TOP SHEETING.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
HT BREAK AT EDGE OF HOT TACK  
SIP SEPARATION IN THE PLANE OF THE SHEET.

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Precision Geosynthetic Laboratories





**TABLE 3.  
SEAM PEEL AND SHEAR TEST RESULTS**

CLIENT: **BROWN & CALDWELL**  
PROJECT: **Grenada Sludge Lagoon Closure**  
DATE REC'D: **16-Jul-10**

MATERIAL: **HDPE SEAM**  
SEAM TYPE: **Fusion Weld**  
PGL JOB #: **G100828**

QC'd By: **B. Yeo**  
TEST METHOD: **ASTM D6392**  
DATE REPORT: **16-Jul-10**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min				
SAMPLE ID	PGL CONTROL #	SHEAR EVALUATION				PEEL EVALUATION				
		MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC (lb/in width)
DS-5 P14/P15	68246	178	> 50%	BRK		1 Outside	136	0	SE1	
		176	> 50%	BRK		2 Outside	141	0	SE1	
		171	> 50%	BRK		3 Outside	128	0	SE1	
		172	> 50%	BRK		4 Outside	129	0	SE1	
		171	> 50%	BRK		5 Outside	130	0	SE1	
		AVG:	133							
		STD. DEV.	6							
		1 Inside	127	0		SE1				
		2 Inside	129	0		SE1				
		3 Inside	130	0		SE1				
		4 Inside	131	0		SE1				
		5 Inside	132	0		SE1				
AVG.		174				AVG:	130			
STD. DEV.		3				STD. DEV.	2			
DS-6 P13/P14	68247	173	> 50%	BRK		1 Outside	141	0	SE1	
		169	> 50%	BRK		2 Outside	127	0	SE1	
		168	> 50%	BRK		3 Outside	128	0	SE1	
		170	> 50%	BRK		4 Outside	122	0	SE1	
		170	> 50%	BRK		5 Outside	136	0	SE1	
		AVG:	131							
		STD. DEV.	8							
		1 Inside	141	0		SE1				
		2 Inside	120	0		SE1				
		3 Inside	136	0		SE1				
		4 Inside	141	0		SE1				
		5 Inside	142	0		SE1				
AVG:		170				AVG:	136			
STD. DEV.		2				STD. DEV.	9			

**BREAK DESCRIPTION (ASTM D6392 FUSION):**

AD ADHESION FAILURE.  
BRK BREAK IN SHEETING.  
SE1 BREAK AT OUTER EDGE OF SEAM.  
SE2 BREAK AT INNER EDGE OF SEAM.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
SIP SEPARATION IN THE PLANE OF THE SHEET.

**EXTRUSION:**

AD1 ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.  
AD2 ADHESION FAILURE.  
AD-WLD BREAK THROUGH THE FILLET.  
SE1 BREAK AT BOTTOM EDGE OF SEAM.  
SE2 BREAK AT TOP EDGE OF SEAM.  
SE3 BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)  
BRK1 BREAK IN BOTTOM SHEETING.  
BRK2 BREAK IN TOP SHEETING.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
HT BREAK AT EDGE OF HOT TACK  
SIP SEPARATION IN THE PLANE OF THE SHEET.

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**TABLE 4.**  
**SEAM PEEL AND SHEAR TEST RESULTS**

CLIENT: **BROWN & CALDWELL**  
PROJECT: **Grenada Sludge Lagoon Closure**  
DATE REC'D: **16-Jul-10**

MATERIAL: **HDPE SEAM**  
SEAM TYPE: **Fusion Weld**  
PGL JOB #: **G100828**

QC'd By: **B. Yeo**  
TEST METHOD: **ASTM D6392**  
DATE REPORT: **16-Jul-10**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min				
SHEAR EVALUATION						PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC (lb/in width)
DS-7 P16/P17	68248	175	> 50%	BRK		1 Outside	136	0	SE1	
		178	> 50%	BRK		2 Outside	127	0	SE1	
		177	> 50%	BRK		3 Outside	128	0	SE1	
		175	> 50%	BRK		4 Outside	130	0	SE1	
		178	> 50%	BRK		5 Outside	127	0	SE1	
		AVG:	130							
		STD. DEV.	4							
		1 Inside	126	0		SE1				
		2 Inside	126	0		SE1				
		3 Inside	141	0		SE1				
4 Inside	129	0	SE1							
5 Inside	130	0	SE1							
AVG.		177				AVG:	130			
STD. DEV.		2				STD. DEV.	6			
DS-8 P17/P18	68249	170	> 50%	BRK		1 Outside	127	0	SE1	
		171	> 50%	BRK		2 Outside	130	0	SE1	
		175	> 50%	BRK		3 Outside	124	0	SE1	
		175	> 50%	BRK		4 Outside	126	0	SE1	
		175	> 50%	BRK		5 Outside	129	0	SE1	
		AVG:	127							
		STD. DEV.	2							
		1 Inside	134	0		SE1				
		2 Inside	128	0		SE1				
		3 Inside	127	0		SE1				
4 Inside	125	0	SE1							
5 Inside	126	0	SE1							
AVG:		173				AVG:	128			
STD. DEV.		3				STD. DEV.	4			

**BREAK DESCRIPTION (ASTM D6392 FUSION):**

AD ADHESION FAILURE.  
BRK BREAK IN SHEETING.  
SE1 BREAK AT OUTER EDGE OF SEAM.  
SE2 BREAK AT INNER EDGE OF SEAM.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
SIP SEPARATION IN THE PLANE OF THE SHEET.

**EXTRUSION:**

AD1  
AD2  
AD-WLD  
SE1  
SE2  
SE3  
BRK1  
BRK2  
AD-BRK  
HT  
SIP

**ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.**

ADHESION FAILURE.  
BREAK THROUGH THE FILLET.  
BREAK AT BOTTOM EDGE OF SEAM.  
BREAK AT TOP EDGE OF SEAM.  
BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)  
BREAK IN BOTTOM SHEETING.  
BREAK IN TOP SHEETING.  
BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE  
BREAK AT EDGE OF HOT TACK  
SEPARATION IN THE PLANE OF THE SHEET.

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**Precision Geosynthetic Laboratories**



**TABLE 5.  
SEAM PEEL AND SHEAR TEST RESULTS**

CLIENT: **BROWN & CALDWELL**  
PROJECT: **Grenada Sludge Lagoon Closure**  
DATE RECD: **16-Jul-10**

MATERIAL: **HDPE SEAM**  
SEAM TYPE: **Fusion Weld**  
PGL JOB #: **G100828**

QC'd By: **B. Yeo**  
TEST METHOD: **ASTM D6392**  
DATE REPORT: **16-Jul-10**

Crosshead Speed: 2 in/min						Crosshead Speed: 2 in/min				
SHEAR EVALUATION						PEEL EVALUATION				
SAMPLE ID	PGL CONTROL #	MAXIMUM STRENGTH (lb/in width)	% Elongation	Locus of Break	PROJECT SPEC. (lb/in width)	SPECIMEN NUMBER	MAXIMUM STRENGTH (lb/in width)	% INCURSION (%)	LOCUS OF BREAK	PROJECT SPEC (lb/in width)
DS-9 P21/P23	68250	168	> 50%	BRK		1 Outside	130	0	SE1	
		170	> 50%	BRK		2 Outside	127	0	SE1	
		175	> 50%	BRK		3 Outside	125	0	SE1	
		175	> 50%	BRK		4 Outside	129	0	SE1	
		169	> 50%	BRK		5 Outside	130	0	SE1	
		AVG:		128						
		STD. DEV.		2						
		1 Inside	127	0		SE1				
		2 Inside	128	0		SE1				
		3 Inside	127	0		SE1				
		4 Inside	126	0		SE1				
		5 Inside	127	0		SE1				
AVG:		127								
STD. DEV.		1								
AVG.		171								
STD. DEV.		3								

**BREAK DESCRIPTION (ASTM D6392 FUSION):**

AD ADHESION FAILURE.  
BRK BREAK IN SHEETING.  
SE1 BREAK AT OUTER EDGE OF SEAM.  
SE2 BREAK AT INNER EDGE OF SEAM.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
SIP SEPARATION IN THE PLANE OF THE SHEET.

**EXTRUSION:**

AD1 ADHESION FAILURE. SPECIMENS DELAMINATED UNDER THE BEAD.  
AD2 ADHESION FAILURE.  
AD-WLD BREAK THROUGH THE FILLET.  
SE1 BREAK AT BOTTOM EDGE OF SEAM.  
SE2 BREAK AT TOP EDGE OF SEAM.  
SE3 BREAK AT BOTTOM EDGE OF SEAM (for PEEL only)  
BRK1 BREAK IN BOTTOM SHEETING.  
BRK2 BREAK IN TOP SHEETING.  
AD-BRK BREAK IN FIRST SEAM AFTER SOME ADHESION FAILURE.  
HT BREAK AT EDGE OF HOT TACK.  
SIP SEPARATION IN THE PLANE OF THE SHEET.

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**Geomembrane Repair Summary**

## Geomembrane Repair Summary

Project Name: Sludge Lagoon Closure

CQA Monitor: Rick Isaac

Project Number: 138466

Repair Number	Date	Time	Seam/ Panel	Operator/ Machine	Repair Location	Description	Size of Repair (Feet x Feet)	Vacuum Test Date	Vacuum Test Results (Pass/Fail)
R-01	7/15/10	928	P6/P7/P8	ST/X73	Tee	Patch	2x14	7/15 MC	Pass
R-02	7/15/10	924	P4/P6/P7	ST/X73	Tee	Patch	2x2	7/15 MC	Pass
R-03	7/15/10	955	P3/P4/P7	ST/X73	Tee	Patch	2x2	7/15 MC	Pass
R-04	7/15/10	1003	P2/P3/P4	ST/X73	Tee	Patch	2x2	7/15 MC	Pass
R-05	7/15/10	1000	P3/P4	ST/X73	Midseam	DS-01	2x10	7/15 MC	Pass
R-06	7/15/10	1006	P1/P2	ST/X73	200 feet north	DS-02	2x10	7/15 MC	Pass
R-07	7/15/10	900	P9/P10	ST/X73	50 feet north	DS-03	2x10	7/15 MC	Pass
R-08	7/15/10	844	P11/P12	ST/X73	150 feet north	DS-04	2x10	7/15 MC	Pass
R-13	7/15/10	1130	P13/P14	FS/X53	200 feet north	DS-06	2x10	7/15 VB	Pass
R-09	7/15/10	950	P14/P15	FS/X53	100 feet north	DS-05	2x10	7/15 MC	Pass
R-15	7/15/10	1140	P17/P18	FS/X53	150 feet north	DS-08	2x10	7/15 VB	Pass
R-14	7/15/10	1146	P16/P17	FS/X53	50 feet north	DS-07	2x10	7/15 VB	Pass
R-16	7/15/10	1155	P21/P23	FS/X53	20 feet north	DS-09	2x10	7/15 VB	Pass
R-11	7/15/10	1031	P19/P20	FS/X53	South end of P20; east of P19	Patch	5x8	7/15 MC	Pass
R-10	7/15/10	1010	P18/P19	FS/X53	South end of P19; east of P18	Patch	5x12	7/15 MC	Pass
R-12	7/15/10	1048	P21/P22/P23	FS/X53	Tee	Patch	2x2	7/15 FS	Pass



## 16 oz Non-Woven Geotextile QA Laboratory Test Results

Geotextile QC Laboratory Test Results

16 oz/sy Non-Woven Geotextile	Mass Per Unit Area (oz/sy)	Grab Tensile Strength (lbs)		Trapezoidal Tear (lbs)		Puncture Resistance (lbs)
		MD	TD	MD	TD	
Project Criteria	15.0	370		145		170
	17.1	499	589	198	288	274

NOTES:

oz/sy - ounces per square yard


MD - Machine direction

TD - Transverse direction

lbs - pounds

**TABLE 1.**  
**MATERIAL PROPERTIES**  
**CLIENT: BROWN AND CALDWELL**  
**PROJECT: Grenada Sludge Lagoon Closure**

Date Received: 7/15/2010  
 Date Reported: 7/19/2010  
 Client Sample ID: 16oz Non-Woven Geotextile  
 Material Description: 16oz Non-Woven Geotextile

QC'd By:   
 PGL Job No.: G100824  
 PGL Control No.: 68236

METHOD	DESCRIPTION	SPECIMENS										Avg.	Std. Dev.	Min	Max	Proj. Specs.
		1	2	3	4	5	6	7	8	9	10					
ASTM D5261	Mass per Unit Area (oz/ yd. <sup>2</sup> ) <i>Test Specimen Size: 4" x 8"</i>	17.0	17.1	17.1	16.9	17.3						17.1	0.2	16.9	17.3	
ASTM D4632	Grab Tensile <i>Test was performed as directed in D4632, dry condition. Instron Tensile Testing Machine with hydraulic action grips and 1 in x 2 in rubber faces was used. Maximum load used for testing: 1500 lbs</i>															
	Grab Breaking Load (lbs)															
	MD	480	501	498	475	501	530	525	498	478	501	499	18	475	530	
	TD	550	598	578	600	598	592	580	576	601	620	589	19	550	620	
	Apparent Breaking Elongation (percent)															
	MD	77	73	77	74	80	77	76	78	77	77	77	2	73	80	
	TD	99	102	97	104	97	90	94	97	102	104	98	5	90	104	
ASTM D4833	Puncture Resistance (lbs) <i>Specimens were tested as directed in Test Method D4833. They were clamped without tension between circular plates of a ring clamp attachment secured in the tensile machine. Test specimens were extended to or beyond the outer edges of the clamping plates.</i>															
		259	261	290	300	298	282	270	275	268	270	274	13	259	300	
		270	260	275	260	275										
ASTM D4533	Trapezoid Tear Strength (lbs) <i>Specimens were tested as directed in Test Method D4533, dry condition.</i>															
	MD	160	161	200	201	198	232	220	201	206	198	198	22	160	232	
	TD	300	298	275	260	259	301	312	300	292	282	288	18	259	312	

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MD - MACHINE DIRECTION  
 TD - TRANSVERSE DIRECTION



## Appendix Q: Tensiometer Calibration Certification

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CHICAGO

MILWAUKEE

MINNEAPOLIS

PHOENIX

CHARLESTON

CHARLOTTE

RALEIGH

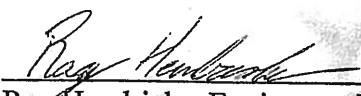
**SYSTEM LOAD CALIBRATION CERTIFICATE**

GSI Equipment No.:	<b>NAL-1607</b>
Device:	<b>Tensiometer</b>
Display Instrument:	<b>ATC</b>
Load Cell Number:	<b>N/A</b>

Geo-Synthetics, Inc. (GSI) verifies the calibration of field testing equipment with a Transducer Techniques MLP-500 load cell, serial number 181166, and a Transducer Techniques PHM-100 indicator, serial number 180479, manufactured by Transducer Techniques of Temecula, CA. The transducer was compared to standards certified traceable to the National Institute of Standards and Technology in Washington, D.C.. The most recent factory force transducer calibration for this device was March 11, 2010.

The calibration of the tensiometer, designated GSI Equipment Number NAL-1607 was verified using the calibration load cell indicator described above on May 11, 2010. The reading of the calibrations are recorded as "true load".

True Load (lb.)	0	50	100	150	200	250	300	350	400	450	500
Display Load (Run #1)	0	50.3	100.6	150.3	200.4	250.4	300.1	350.4	400.7	450.3	500.5
Display Load (Run #2)	0	50.6	100.5	150.1	200.6	250.9	300.5	350.6	400.6	450.1	500.5
Display Load (Run #3)	0	50.4	100.8	150.0	200.7	250.6	300.3	350.5	400.4	450.7	500.6
Display Load (Average)	0	50.4	100.6	150.1	200.6	250.6	300.3	350.5	400.6	450.4	500.5

  
Ray Hendricks, Equipment Manager



## Appendix R: Vegetation Product Information

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### Temporary Seeding

Agricultural Lime

Japanese Millet

### Permanent Seeding

13-13-13 Blended Fertilizer

Kentucky-31 Tall Fescue, Pensacola-Bahiagrass, and Bermudagrass - Unhulled

## Agricultural Lime

## HI GRADE GIN, CORP

COTTONSEED-FERTILIZER-GRAIN-FEED

# HI GRADE FARM SUPPLY

794 HWY. 82 EAST  
WINONA, MISSISSIPPI 38967

PHONE: 283-1763 or 1764

**GROSS**

TARE

NET

[illegible]

**All claims and returned goods MUST be accompanied by this bill.**

Rec'd by \_\_\_\_\_

Japanese Millet

Lot Number: 115 Test Date: 12-09  
In CA, MN, NH, NY, OH & PA Sell By: 3-11

Name:

PURE SEED	VARIETY	KIND	GERM	DORMANT	TOTAL	ORIGIN
99.72%		JAPANESE MILLET	80%		80%	MO

INERT: 0.17%  
OTHER CROP: 0.00%  
WEED SEED: 0.11%  
NOXIOUS WEED SEED: (PER POUND)  
5 GIANT FOXTAIL

NET WEIGHT: 50 LB

Shipper Name: EXCEL GARDEN PRODUCTS  
Address: GRAND PRAIRIE, TX 75051 AMS#628

Notice to the Consumer

Arbitration/Conciliation/Mediation required by several states. Under the seed laws of several states, arbitration, mediation or conciliation is required as a prerequisite to maintaining a legal action based upon the failure of seed, to which this notice is attached, to produce as represented. The consumer shall file a complaint (sworn by for FL, IL, MS, SC, TX, WA, signed only CA, GA, ID, ND, SD) along with the requested filing fee (where applicable) with the Commissioner/Director/Secretary of Agriculture, Seed Commissioner (IL), or Chief Agricultural Officer purchased. A copy of the complaint shall be sent to the seller by certified or registered mail or as otherwise provided by state statute.

Lot Number: 115 Test Date: 12-09  
In CA, MN, NH, NY, OH & PA Sell By: 3-11

Name:

PURE SEED	VARIETY	KIND	GERM	DORMANT	TOTAL	ORIGIN
99.72%		JAPANESE MILLET	80%		80%	MO

INERT: 0.17%  
OTHER CROP: 0.00%  
WEED SEED: 0.11%  
NOXIOUS WEED SEED: (PER POUND)  
5 GIANT FOXTAIL

NET WEIGHT: 50 LB

Shipper Name: EXCEL GARDEN PRODUCTS  
Address: GRAND PRAIRIE, TX 75051 AMS#628

Notice to the Consumer

Arbitration/Conciliation/Mediation required by several states. Under the seed laws of several states, arbitration, mediation or conciliation is required as a prerequisite to maintaining a legal action based upon the failure of seed, to which this notice is attached, to produce as represented. The consumer shall file a complaint (sworn by for FL, IL, MS, SC, TX, WA, signed only CA, GA, ID, ND, SD) along with the requested filing fee (where applicable) with the Commissioner/Director/Secretary of Agriculture, Seed Commissioner (IL), or Chief Agricultural Officer purchased. A copy of the complaint shall be sent to the seller by certified or registered mail or as otherwise provided by state statute.



BWI COMPANIES, INC P.O. BOX 5968 TEXARKANA, TX 75505  
Kind: MILLET Net Wt. 50.000Lbs.  
Variety: JAPANESE Origin: OR  
Lot #: 114-10 Item Code: FS125  
Pure Seed: 99.93% Crop Seed: 00.00% Inert: 00.07% Weed Seed: 00.00%  
Germination: 93.00% DORMANT: 02.50% Total Germ and DORMANT: 95.50%  
Noxious Weed Seeds/lb: NONE

Date Tested: 07/10  
PERMITS: AR R633  
TX 19712 MO W04787



Printed At:  
MEMPHIS, TN

In lieu of all other warranties, expressed or implied (including any implied warranty of merchantability or fitness for a particular purpose), and all other declarations of responsibility, we warrant to the extent of the purchase price that the seeds we sell are as described by us on our contract within reasonable tolerances and liability under contract. For seedlings or seedlings of the variety, cause or extent of the loss, and as a condition to any liability on our part we must receive notice of the loss within 30 days of the date of the purchase price. If the loss is not received within 30 days of the purchase price, we will be returned at once in original unopened containers and the purchase price will be returned.

BWI COMPANIES, INC P.O. BOX 5968 TEXARKANA, TX 75505  
Kind: MILLET Net Wt. 50.000Lbs.  
Variety: JAPANESE Origin: OR  
Lot #: 114-10 Item Code: FS125  
Pure Seed: 99.93% Crop Seed: 00.00% Inert: 00.07% Weed Seed: 00.00%  
Germination: 93.00% DORMANT: 02.50% Total Germ and DORMANT: 95.50%  
Noxious Weed Seeds/lb: NONE

Date Tested: 07/10  
PERMITS: AR R633  
TX 19712 MO W04787



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BWI COMPANIES, INC P.O. BOX 5968 TEXARKANA, TX 75525  
Kind: MILLET Net Wt. 50.000Lbs.  
Variety: JAPANESE Origin: OR  
Lot #: 114-10 Item Code: FS125  
Pure Seed: 99.93% Crop Seed: 00.00% Inert: 00.07% Weed Seed: 00.00%  
Germination: 93.00% DORMANT: 02.50% Total Germ and DORMANT: 95.50%  
Noxious Weed Seeds/lb: NONE

Date Tested: 07/10  
PERMITS: AR R633  
TX 19712 MO W04787



Printed At:  
MEMPHIS, TN

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BWI COMPANIES, INC P.O. BOX 5968 TEXARKANA, TX 75505  
Kind: MILLET Net Wt. 50.000Lbs.  
Variety: JAPANESE Origin: OR  
Lot #: 114-10 Item Code: FS125  
Pure Seed: 99.93% Crop Seed: 00.00% Inert: 00.07% Weed Seed: 00.00%  
Germination: 93.00% DORMANT: 02.50% Total Germ and DORMANT: 95.50%  
Noxious Weed Seeds/lb: NONE

Date Tested: 07/10  
PERMITS: AR R633  
TX 19712 MO W04787



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**13-13-13 Blended Fertilizer**

### GUARANTEED ANALYSIS

**Limitation of liability.** WOODS FARM SUPPLY, INC. shall in no event be liable to buyer for damages of any kind, including, but not limited to, direct, indirect, special, incidental or consequential damages or loss of production or loss of profits resulting from any cause whatsoever. THIS WARRANTY IS EXPRESSLY IN LIEU OF ALL OTHER EXPRESS OR IMPLIED WARRANTIES, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.

**CAUTION:** Keep out of reach of children.

25/11/22.6 kg

WOODS F.  
3248 HIGHWAY 300 Y. INC.  
P.O. BOX 366  
BYHALIA, MS 38611





Kentucky-31 Tall Fescue, Pensacola-Bahiagrass, and Bermudagrass - Unhulled

KENTUCKY-31 TALL FESCUE TEST DATE: 8/09  
NET WT: 50 LBS. LOT NUMBER: 108259P  
GERMINATION: 85%  
ORIGIN: MISSOURI

PURE SEED  
95.00% KENTUCKY 31 TALL FESCUE  
1.73% INERT MATTER AMS 2769  
3.11% OTHER CROP SEED  
0.16% WEED SEED  
NOXIOUS WEED SEED PER POUND:  
RED SORREL 18; HAIRY CHESS 36;  
DOCK 18;

JIMMY SANDERS SEED CO.  
ECRU, MS 38841

Except when in violation of State Law, we warrant only to the extent of the purchase price of seed herein to be within the recognized tolerances stated on the label. We give no further warranty expressed or implied.

**Pensacola-Bahiagrass**

Pure Seed: 99.83% Crop: .0% Lot # 1140  
Inert: .15% Weed: .02% Net Wt. 50#  
Test: 3/10 Germ: 53% Dormant: 19%  
Total Viable: 72% Noxious Weed: None Found

JIMMY SANDERS, INC  
ECRU, MISSISSIPPI  
38841

**Bermudagrass (UnHulled)**

Lot# 108180-H Net Wt: 50 LB Test 2/10  
Purity: 99.98% Other Crop: .00% Weed Seed .00%  
Inert Matter: .02% Germ 93% Orgin: CA  
Noxious Weeds: None Found

Jimmy Sanders, Inc  
Ecrú, Mississippi